ORDER NO. AD8807179C2

Service Manual

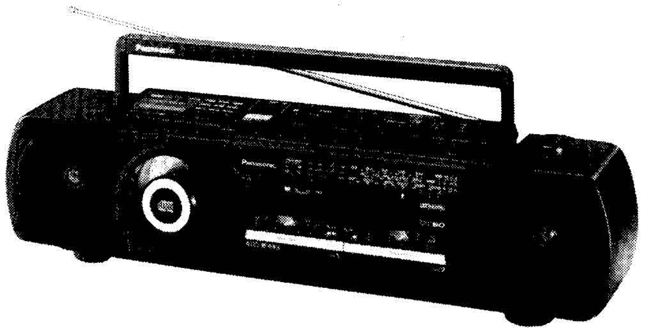
Radio Cassette

RX-DT50

Portable Stereo CD System

Color

(K) ....Black Type



Area

Color	Area
(K)	[E]........All European areas except [EB,EG,EF,Ei].
(K)	[EB] ......United Kingdom.
(K)	[EG] ......F.R.Germany.
(K)	[EF].......France.
(K)	[Ei]........Italy.

DECK 1 : RX-FW25 MECHANISM SERIES
DECK 2 : RX-CW42L MECHANISM SERIES

■ SPECIFICATIONS

General:

Power Requirement:	[E,EG,EF,Ei].....AC ; 220V, 50Hz [EB].....AC ; 240V, 50Hz Battery; 12 V (8xR20P/LR20 SIZE Flashlight Batteries) DC IN ; 12 ~ 13.2 V(with optional car adaptor RP-952),ø6
Power Consumption:	30 W(AC only)
Power Output:	50 W(25 W x2).....PMPO 25 W (12.5 W x2)..MPO
Speaker:	10 cm x2 PM Dynamic speaker (2.7Ω)
Input:	EXT MIC ; Sensitivity 5mV/applicable microphone impedance 200 ~ 600 Ω, ø3.5
Output:	CD ; 0.92 Vrms(CD 0 dB) HEADPHONES ; 32 Ω(8 ~ 50 Ω), ø3.5
Dimensions:	690(W) x177(H) x167(D)mm
Weight:	5.3Kg without batteries

Disc Player Section :

Sampling Frequency:	44.1 KHz
D-A Conversion:	16-bit linear
Pickup:	FF-1(Fine focus.1 beam)
Light Source:	Semiconductor laser (wavelength 780nm)
No.of Channels:	2 channels,stereo
Frequency Response:	20 ~ 20,000 Hz (+1/-3 dB)
S/N Ratio:	97 dB(1 KHz)
Wow and Flutter:	below measurable limit

Radio Section:

Radio Frequency Range:	FM ; 87.5 ~ 108 MHz LW ; 148.5 ~ 285 kHz MW ; 520 ~ 1610 kHz
Intermediate Frequency:	FM ; 10.7 MHz [E, EG, EF, Ei]...AM (LW/MW) 455 kHz [EB]...AM (LW/MW) 459 kHz
Sensitivity:	FM ; 2 μV/50 mW output (-3 dB Limit Sens) LW ; 126 μV/m/50 mW output MW ; 142 μV/m/50 mW output

Tape Deck Section:	**DECK 1**
Frequency Response:	40 ~ 15,000 Hz(with normal tape) 40 ~ 16,000 Hz(with CrO2 tape)
Tape Speed:	4.8 cm/s
Track System:	4-track 2-channel stereo playback

Tape Deck Section:	**DECK 2**
Frequency Response:	40 ~ 15,000 Hz(with normal tape) 40 ~ 16,000 Hz(with CrO2 tape)
Recording System:	AC bias,AC erase
Tape Speed:	4.8 cm/s
Track System:	4-track 2-channel stereo recording and playback

Design and specifications are subject to change without notice.

Panasonic

Matsushita Electric Industrial Co., Ltd.
Central P.O. Box 288, Osaka 530-91, Japan

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PRECAUTION OF LASER DIODE

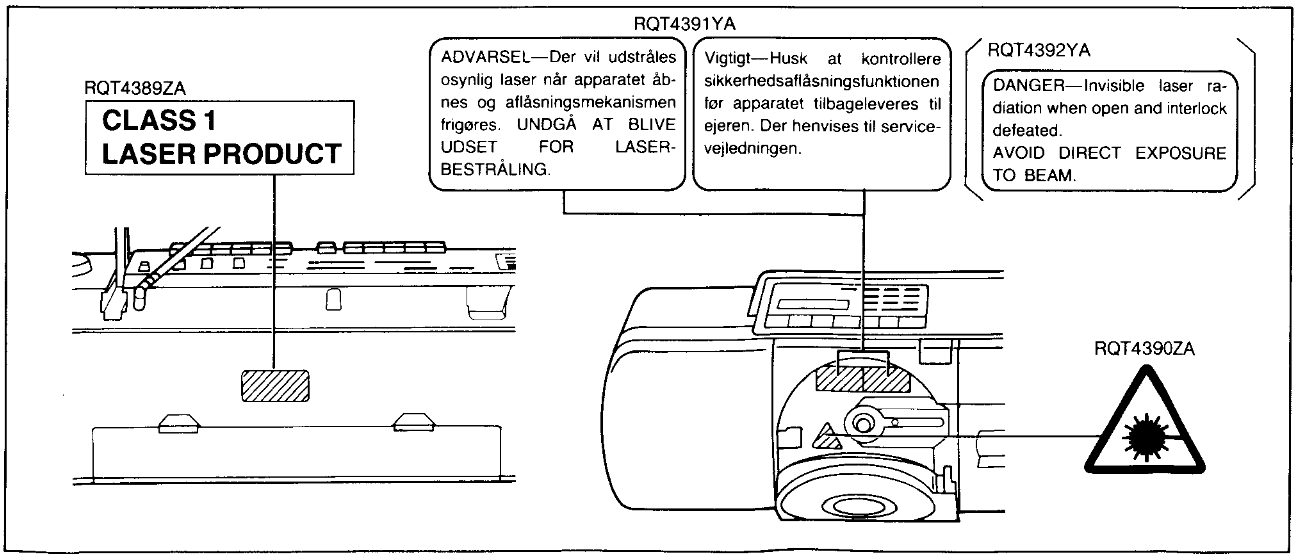
Caution: This product utilizes a laser diode.
ADVARSEL: I dette a apparat anvendes laser.

• Use of caution labels

Note ○ Mark is used, × Mark is not used.

Areas	RQT4389ZA	RQT4390ZA	RQT4391YA	RQT4392YA
[E, EG, EI, EF]	○	○	○	×
[EB]	○	○	×	○

LOCATION OF LABELS



CLASS 1
LASER PRODUCT

ADVARSEL—Der vil udstråles osynlig laser når apparatet åbnes og aflåsningsmekanismen frigøres. UNDGÅ AT BLIVE UDSET FOR LASER-BESTRÅLING.

Vigtigt—Husk at kontrollere sikkerhedsaflåsningsfunktionen før apparatet tilbageleveres til ejeren. Der henvises til service-vejledningen.

DANGER—Invisible laser radiation when open and interlock defeated.
AVOID DIRECT EXPOSURE TO BEAM.

Portable Stereo
CD System

ORDER NO. AD8807179C2-A

RX-DT50

DEUTSCH

■ TECHNISCHE DATEN

Allgemein:	
Spannungsversorgung:	(E, ED, EF, EI) ... Netz 220 V, 50 Hz (EB) ... Netz 240 V, 50 Hz Batterie: 12V (8X Batterien der Größe R20P, LR20) Gleichstrom-Eingang: 12 ~ 13,2 V (mit optionalem Autoadapter RP-952), φ 6
Leistungsaufnahme:	30 W (nur Netz)
Ausgangsleistung:	50 W (25 W × 2) ... Musikspitzenleistung 25W (12,5W × 2)...Spitzenleistung
Lautsprecher:	10 cm × 2, dynamischer PM-Lautsprecher (2,7Ω)
Eingang:	EXT MIC: Empfindlichkeit 5 mV/verwendbare Mikrofon-Impedanz 200 ~ 600Ω, φ 3,5
Ausgang:	CD: 0,92Vrms (CD 0dB) HEADPHONES: 32Ω (8~50Ω), Φ3,5
Abmessungen:	690(B) × 177(H) × 167(T) mm
Gewicht:	5,3 kg ohne Batterien
CD-Player-Teil:	
Abtastfrequenz:	44,1 kHz
D/A-Umwandlung:	16 Bit linear
Abtaster:	FF-1 (Feinfokussierung, 1 Strahl)
Lichtquelle:	Halbleiterlaser, Wellenlänge 780 nm

Anzahl Kanäle:	2 Kanäle, Stereo
Frequenzgang:	20 ~ 20.000 Hz (+1/−3 dB)
Störspannungsabstand:	97 dB (1 kHz)
Gleichlaufschwankungen:	nicht meßbar
Empfangsteil:	
Empfangsfrequenz:	UKW: 87,5 ~ 108 MHz LW: 148,5 ~ 285 kHz MW: 520 ~ 1610 kHz
Zwischenfrequenz:	UKW: 10,7 MHz (E, EG, EF, EI)...LW/MW: 455kHz (EB)...LW/MW: 459kHz
Empfindlichkeit:	UKW: 2 μV/50 mW Ausgang (−3 dB Empfindlichkeitsschwelle) LW: 126 μV/m/50 mW Ausgang MW: 142 μV/m/50 mW Ausgang
Kassettendeckteil:	**DECK 1**
Frequenzgang:	40 ~ 15.000 Hz (mit Normalband) 40 ~ 16.000 Hz (mit Chromband)
Bandgeschwindigkeit:	4,8 cm/Sek.
Spursystem:	4 Spuren, 2-Kanal-Stereo, Wiedergabe
Kassettendeckteil:	**DECK 2**
Frequenzgang:	40 ~ 15.000 Hz (mit Normalband) 40 ~ 16.000 Hz (mit Chromband)
Aufnahmesystem:	Wechselstrom-Vormagnetisierung, Wechselstrom-Löschung
Bandgeschwindigkeit:	4,8 cm/Sek.
Spursystem:	4 Spuren, 2-Kanal-Stereo, Aufnahme und Wiedergabe

Änderungen vorbehalten.

Hinweise: (für Empfangsteil)

1. S1-1 ~ S1-8: Bandwahlschalter auf "FM"
   (F ... FM, L ... LW, M ... MW)
2. S2: UKW-Betriebsart/Interferenzen-Schalter auf "STEREO/II"
   (M/I ... MONO/I, ST/II ... STEREO/II, ST/III ... STEREO/III)
3. VR1: UKW-VCO-Regelwiderstand
4. Messungen der Gleichstromspannungen erfolgen mit elektronischem Voltmeter von der negativen Batterieklemme.
   [ ] ... UKW, ( ) ... MW/LW
5. Die Ersatzteilnummern sind in der Ersatzteilliste angegeben.
6. Das Symbol (■) kennzeichnet den Testpunkt, z.B. **TP1** = Testpunkt 1.

- **Änderungen des Schaltplans aufgrund der Entwicklung neuer Technologien vorbehalten.**

Hinweise: (für Haupt- und Steuerteil)

1. S101-1 ~ ,S101-6: Funktionswahlschalter auf "TAPE/POWER OFF" (T ... TAPE/POWER OFF, R ... RADIO, CD ... CD)
2. S102: Bandsorten-Wahlschalter auf "NORMAL TAPE" (NO ... NORMAL TAPE, CR ... CrO_2 TAPE)
3. S103: Editiergeschwindigkeit-Wahlschalter auf "HIGH SPEED" (N ... NORMAL SPEED, H ... HIGH SPEED)
4. S149: Dolby-Schalter auf "OFF"
5. S151-1 ~ S151-8: Aufnahme/Wiedergabe-Umschalter auf "PLAYBACK" (P ... PLAYBACK, R ... RECORD)
6. S201-1 ~ S201-3: Vorwärts/Rückwärts-Umschalter auf "FORWARD" (F ... FORWARD, R ... REVERSE)
7. S202: FF/REW-Schalter auf "OFF"
8. S203: PLAY-Schalter auf "OFF" KASSETTEN-DECK $\boxed{1}$
9. S204: Motorschalter auf "OFF"
10. S205: Motorschalter auf "OFF" ------- KASSETTEN-DECK $\boxed{2}$
11. S301: Netz/Gleichstrom-Eingang-Umschalter auf "AC IN" (D ... DC IN, A ... AC IN)
12. VR101: Vormagnetisierungsstrom-Regelwiderstand
13. VR102: Bandgeschwindigkeits-Regelwiderstand
14. VR147, 247: Aufnahme/Wiedergabe-Pegel-Regelwiderstand
15. VR148, 248: Wiedergabepegel-Regelwiderstand ------------------------------- KASSETTEN-DECK $\boxed{1}$
16. VR149, 249: Wiedergabepegel-Regelwiderstand ------------------------------- KASSETTEN-DECK $\boxed{2}$
17. VR301-1, VR301-2: XBS-Pegelregelung
18. VR302-1, VR302-2: Klangregelung
19. VR303-1, VR303-2: Lautstärkeregelung
20. Messungen der Gleichstromspannungen erfolgen mit elektronischem Voltmeter von der negativen Batterieklemme.
    Kein Symbol ... Kassetten-Wiedergabe, ( ) ... Kassetten-Aufnahme, < > ... CD-Wiedergabe
21. Batteriestrom: Kein Signal ... 130 mA (VR MIN)
    Maximaler Ausgang (VR MAX)
    Radio ... 1070 mA
    Kassette (Aufnahme) ... 280 mA
    Kassette (Wiedergabe) ... 1280 mA
    Kassette (CD-Aufnahme) ... 1800 mA
    CD-Wiedergabe ... 1680 mA
22. Die Ersatzteilnummern sind in der Ersatzteilliste angegeben.
23. Das Symbol (■) kennzeichnet den Testpunkt, z.B. **TP1** = Testpunkt 1.
24. Wichtiger Sicherheitshinweis
    Die mit ⚠ gekennzeichneten Bauteile weisen spezielle Eigenschaften auf, die für die Sicherheit wichtig sind.
    Zum Ersetzen dieser Bauteile dürfen nur die vom Hersteller vorgeschriebenen Bauteile verwendet werden.

- **Änderungen des Schaltplans aufgrund der Entwicklung neuer Technologien vorbehalten.**

Hinweise: (für CD-Player und Flüssigkristalldisplay/ Bedientasten-Teil)

1. S801: Tastenschalter 1
2. S802: Tastenschalter 2
3. S803: Tastenschalter 3
4. S804: Tastenschalter 4
5. S805: Tastenschalter 5 Zahlentasten
6. S806: Tastenschalter 6
7. S807: Tastenschalter 7
8. S808: Tastenschalter 8
9. S809: Tastenschalter 9
10. S810: Tastenschalter 10
11. S811: Tastenschalter 10
12. S812: Überspring/Suchlauf-Schalter (FWD ▶▶ /▶▶|)
13. S813: Überspring/Suchlauf-Schalter (REV ◀◀ /|◀◀)
14. S814: Wiedergabe/Stop-Schalter
15. S815: Pause/Lösch-Schalter
16. S816: Musiksuchlauf/Restzeit-Schalter
17. S817: Wiederholschalter
18. S818: Programm/Abruf-Schalter
19. S819: ATLS-(automatische Bandpegel-Einstellung)-Schalter
20. S820: Schließen-(CD-Abdeckung-Geschlossen-Erkennung)-Schalter
21. S821: Laser-Ein/Aus-Schalter
22. S822: Rückstellschalter
23. VR701: Best-Eye-Regelwiderstand
24. VR702: Spurhaltung-Balance-Regelwiderstand
25. VR703: Fokus-Versatz-Regelwiderstand
26. VR704: Fokus-Verstärkung-Regelwiderstand
27. VR705: Spurhaltung-Verstärkung-Regelwiderstand
28. VR706: Spurhaltung-Versatz-Regelwiderstand
29. Messungen der Gleichstromspannungen erfolgen mit elektronischem Voltmeter von der negativen Batterieklemme.
    Kein Symbol ... CD-Wiedergabe (1 kHz)
30. Die Ersatzteilnummern sind in der Ersatzteilliste angegeben.
31. Das Symbol (■) kennzeichnet den Testpunkt, z.B. **TP1** = Testpunkt 1.

- **Änderungen des Schaltplans aufgrund der Entwicklung neuer Technologien vorbehalten.**

MESSUNGEN UND ABGLEICHUNGEN

< EMPFANGSTEIL >

Hinweise:
(E) ... Für alle europäischen Länder außer (EB, EG, EF, EI).
(EB) ... Für Großbritannien.
(EG) ... Für BR Deutschland.
(EF) ... Für Frankreich.
(EI) ... Für Italien.

■ ABGLEICH-ANWEISUNGEN

VOR DEM ABGLEICH SORGFÄLTIG DURCHLESEN	
● XBS-Pegel auf Minimum stellen. ● Lautstärkeregler auf Maximum stellen. ● Klangregler auf Mitte stellen. ● Funktionswahlschalter auf Radio stellen. ● Bandschalter auf UKW, MW oder LW stellen.	● UKW-Betriebsart/Interferenzen-Schalter auf STEREO/II oder STEREO/III stellen. ● Spannungsversorgung auf 12 V Gleichstrom stellen. ● Der Ausgang des Signalgenerators sollte nur so hoch sein, wie zur Erzielung einer Ausgangsanzeige erforderlich.
BENÖTIGTE GERÄTE	
● Frequenzzähler ● Oszilloskop ● Elektronischer Voltmeter	● ZF-Wobbelgenerator ● Signalgenerator Amplitudenmodulation, Frequenzmodulation

■ LW- und MW-ABGLEICH

	WELLEN-BEREICH	SIGNALGENERATOR oder WOBBELOSZILLATOR		STELLUNG DES ABSTIMMREGLERS	ELEKTRONISCHER WECHSELSTROM-VOLTMETER oder OSZILLOSKOP	EINSTELLWERT	BEMERKUNGEN
		ANSCHLÜSSE	FREQUENZ				
	MW/LW-ZF-ABGLEICH						
(1)	MW	Aus einem Draht einige Schleifenwindungen bilden und das Signal in die Rahmenantenne des Empfängers abstrahlen.	(E, EG, EF, EI) ... 455 kHz (EB) ... 459 kHz 30% Mod. bei 400 Hz	Abstimmpunkt ohne Interferenz (etwa bei 600 kHz)	Kopfhörerbuchse (Siehe Abb. 3)	T2 (MW ZF-Abgleich)	Auf maximalen Ausgang einstellen.
	LW-HF-ABGLEICH						
(2)	LW	″	(E, EB, EG, EF) ... 136 kHz (EI) ... 137 kHz	Abstimmkondensator ganz geschlossen	″	L6 (LW-Oszillatorspule)	″
(3)	LW	″	297 kHz	Abstimmkondensator ganz geöffnet	″	CT6 (LW-Oszillatortrimmer)	″
(4)	LW	″	145 kHz	Auf Signal abstimmen	″	(*1) L3-1 (LW-Antennenspule)	Auf maximalen Ausgang abstimmen. L3-1 durch Verschieben der Spule am Ferritkern einstellen.
(5)	LW	″	285 kHz	″	″	CT3 (LW-Antennentrimmer)	Auf maximalen Ausgang einstellen. Schritte (2) ~ (5) wiederholen.
	(*1) Nach der Einstellung Antennenspule mit Wachs befestigen.						
	MW-HF-ABGLEICH						
(6)	MW	″	(E, EB, EG, EF) ... 511 kHz (EI) ... 514 kHz	Abstimmkondensator ganz geschlossen	″	L7 (MW-Oszillatorspule)	Auf maximalen Ausgang einstellen.
(7)	MW	″	(E, EB, EG, EF) ... 1,650 kHz (EI) ... 1,645 kHz	Abstimmkondensator ganz geöffnet	″	CT1-3 (MW-Oszillatortrimmer)	″
(8)	MW	″	550 kHz	Auf Signal abstimmen	″	(*1) L3-2 (MW-Antennenspule)	Auf maximalen Ausgang abstimmen. L3-2 durch Verschieben der Spule am Ferritkern einstellen.
(9)	MW	″	1,500 kHz	″	″	CT1-4 (MW-Antennentrimmer)	Auf maximalen Ausgang einstellen. Schritte (6) ~ (9) wiederholen.
	(*1) Nach der Einstellung Antennenspule mit Wachs befestigen.						

■ UKW-ABGLEICH

	WELLEN-BEREICH	SIGNALGENERATOR oder WOBBELOSZILLATOR		STELLUNG DES ABSTIMMREGLERS	ELEKTRONISCHER WECHSELSTROM-VOLTMETER oder OSZILLOSKOP	EINSTELLWERT	BEMERKUNGEN
		ANSCHLÜSSE	FREQUENZ				
	UKW-ZF-ABGLEICH						
(1)	UKW	Hohe Seite durch 0,001µF an Testpunkt TP3, negative Seite an Testpunkt TP2.	10,7 MHz (400 Hz Ablenkung)	Abstimmpunkt ohne Interferenz (bei 90 MHz)	Vertikalamplitude des Oszilloskops an Testpunkt TP5, negative Seite an Testpunkt TP4 anschließen.	T1 (UKW 1. ZF-Abgleich)	Wellenform ist in Abb. 1 gezeigt.
(2)	UKW	〃	〃	〃	〃	T3 (UKW 2. ZF-Abgleich)	Wellenform ist in Abb. 2 gezeigt.
	UKW-HF-ABGLEICH						
(3)	UKW	Über künstliche UKW-Antenne an Testpunkt TP1, negative Seite an Testpunkt TP2 anschließen.	(E, EB, EF) ... 86,2 MHz (EG, EI) ... 87,38 MHz	Drehkondensator ganz geschlossen.	Kopfhörerbuchse (Siehe Abb. 3)	L2 (UKW-Oszillatorspule)	(*2) Auf maximalen Ausgang einstellen.
(4)	UKW		(E, EB, EI) ... 109,2 MHz (EG, EI) ... 108,3 MHz	Drehkondensator ganz geöffnet.	〃	CT1-2 (UKW-Oszillatortrimmer)	〃
(5)	UKW		106 MHz	Auf Signal abstimmen	〃	CT1-1 (UKW-Antennentrimmer)	(*2) Auf maximalen Ausgang abstimmen. Schritte (3) ~ (5) wiederholen.
	(*2) Drei Ausgangsfrequenzkurven sind vorhanden, die richtige Abstimmung ist die Mittenfrequenz.						

UKW-KANALTRENNUNG-ABGLEICH

	UKW-SIGNALGENERATOR-QUELLENANSCHLUSS	ELEKTRONISCHER FREQUENZZÄHLER	ABGLEICHPUNKT (Siehe Abb. 1.)	EINSTELLWERT	BEMERKUNGEN
(6)	98 MHz, 60 dB (CW) Über künstliche UKW-Antenne an Testpunkt TP1, negatvie Seite an Testpunkt TP2 anschließen.	TP6 .... (+) TP7 .... (−)	VR1	19 lHz	UKW-Betriebsart/Interferenzen-Schalter → STEREO VR1 für Anzeige von 19 kHz (± 50 Hz) auf elektronischem Zähler einstellen.

< KASSETTENDECKTEIL >

■ ABGLEICH-ANWEISUNGEN

VOR DEM ABGLEICH SORGFÄLTIG DURCHLESEN

- Funktionswahlschalter auf TAPE/OFF stellen.
- Lautstärkeregler auf Maximum stellen.
- XBS-Pegelregler auf Minimum stellen.
- Klangregler auf Mitte stellen.
- Bandsorten-Wahlschalter auf Normal oder CrO_2 stellen.
- UKW-Betriebsart/Interferenzen-Schalter auf STEREO/II oder STEREO/III stellen.
- Dolby-Rauschunterdrückung-Schalter auf OFF stellen.
- Spannungsversorgung auf 12 V Gleichstrom stellen.
- Der Ausgang des Signalgeneratos sollte nur so hoch sein, wie zur Erzielung einer Anzeige erforderlich.

BENÖTIGTE GERÄTE

- Frequenzzähler
- Elektronischer Voltmeter
- Oszilloskop
- Testkassette QZZCFM: 315Hz, 0dB • 8kHz, −20dB
  QZZCWAT: 3 kHz, −10 dB

GEGENSTAND	TESTKASSETTE	MESSPUNKT	ABGLEICHPUNKT	VERFAHREN
(A) Azimuth	QZZCFM (8 kHz, −20 dB)	Kopfhörerbuchse (Siehe Abb. 3)	Azimuth-Einstellschraube (Siehe Abb. 4, 5)	Die Azimuth-Einstellschraube während wiederholter Vorwärts- und Rückwärts-Wiedergabe so einstellen, daß der maximale Kopfazimuth-Abgleich erzielt wird, wobei beide Kanäle gleich sind. Dann die Einstellschraube mit Farbe sichern.

GEGENSTAND	TESTKASSETTE	MESSPUNKT	ABGLEICHPUNKT	VERFAHREN
(B) Bandgeschwindigkeit	QZZCWAT (3 kHz, −10 dB)	Kopfhörerbuchse (Siehe Abb. 3)	VR102	Einstellung der normalen Geschwindigkeit 1. Testkassette (QZZCWAT) in Kassettendeck (2) einsetzen und wiedergeben. 2. VR102 einstellen, so daß der Meßwert 3000 $^{+40}_{-20}$ Hz erreicht. 3. Kassettendeck (1) auf die gleiche Weise prüfen, um sicherzustellen, daß es der Spezifikation entspricht. Kassettendeck (1) ... ±30 Hz der Geschwindigkeit von Kassettendeck (2). Falls nicht, die obigen Schritte 1 und 2 wiederholen. Hinweis: Dieses Gerät verwendet einen Antriebsmotor, daher muß die Einstellung in Kassettendeck (2) durchgeführt werden. Einstellung der hohen Geschwindigkeit 4. Die Testpunkte TP10 und TP11 kurzschließen, um die Betriebsart für hohe Geschwindigkeit einzustellen. (Siehe Platinen- und Schaltplan.) 5. Prüfen, ob die gemessene Geschwindigkeit mindenstens das 1,7-fache der normalen Geschwindigkeit beträgt.
(C) Vormagnetisierungsstrom (nur Deck 2)	Normalband und Chromband verwenden.	TP21 ... (+) TP20 ... (−)	VR101	Aufnahme-Betriebsart UKW-Betriebsart/Interferenzen-Schalter → STEREO/II • Normalband ... 12 mV ±0,3 mV • Chromband ... 18 mV ±1,5 mV Siehe Abb. 6.
(D) Vormagnetisierungs-Oszillationsfrequenz (nur Deck 2)	Normalband verwenden.	TP21 ... (+) TP20 ... (−)	L151	Aufnahme-Betriebsart UKW-Betriebsart/Interferenzen-Schalter → STEREO/III • Normalband ... 72 kHz ±0,3 kHz Siehe Abb. 6.
(E) Wiedergabepegel	QZZCFM (315 Hz, 0 dB)	Linker Kanal TP22 ... (+) TP23 ... (−) Rechter Kanal TP24 ... (+) TP23 ... (−)	DECK 1 Linker Kanal ... VR148 Rechter Kanal ... VR248 DECK 2 Linker Kanal ... VR149 Rechter Kanal ... VR249	(DECK 1) (1) Das Gerät auf Wiedergabe schalten. (2) VR148 und VR248 einstellen, bis der Wert 15 mV ±0,5 dB auf dem elektronischen Voltmeter angezeigt wird. (DECK 2) (3) VR149 und VR249 auf die gleiche Weise einstellen.
(F) Aufnahme/Wiedergabe-Pegel	QZZCFM (315 Hz, 0 dB), Leerkassette	Linker Kanal TP22 ... (+) TP23 ... (−) Rechter Kanal TP24 ... (+) TP23 ... (−)	Linker Kanal ... VR147 Rechter Kanal ... VR249	(1) Testkassette QZZCFM in DECK 1 und eine Leerkassette in DECK 2 einsetzen. (2) Das Gerät auf Überspielen mit normaler Geschwindigkeit stellen. (3) VR147 und VR247 einstellen, bis der Unterschied zwischen dem Wiedergabepegel von DECK 1 und dem Aufnahmepegel von DECK 2 innerhalb von 1 dB liegt.

■ CD-PLAYER-TEIL

Zur Überprüfung, daß der CD-Player einwandfrei einschaltet, sowie für Reparatur und Einstellung die folgenden Schritte durchführen.

Hinweise:

1. Auch beim Betrieb ist die Funktion der Laserdiode unterbunden, wenn die Abdeckung des Disc-Halters nicht geschlossen und die Sicherheitsschalter S820, 821 nicht betätigt wurden.
2. Niemals in die Linse des Laser-Abtasters schauen, wenn die Abdeckung des Disc-Halters entfernt ist und die Sicherheitsschalter S820, 821 betätigt wurden.
3. Zur Wiedergabe der Test-Disc (SZZP1054C) die Regler wie folgt einstellen.
   - Lautstärkeregler (VR303) ... 1/4
   - XBS-Pegelregler (VR301) ... MIN
   - Klangregler (VR302) ... CENTER

- **Vorbereitungen für den Einbau**
  1. Das vordere Gehäuse nach den Schritten 1 bis 3 des Zerlegungs-Verfahrens (siehe Seite 7 bis 9) entfernen. Den Lautsprecher-Stecker (CS503) noch nicht abtrennen.
  2. Den CD-Player nach den Schritten 5 und 6 ausbauen.
  3. Die CD-Abdeckungs-Baugruppe und die CD-Abdeckungs-Platte nach den Schritten 27 und 28 entfernen. Die drei Klemmzungen in Richtung der Pfeile drücken, um den Magnet zu entfernen (siehe Abb. 10 und 11).
  4. Die Klemmen 2 und 4 des Steckeranschlusses CS701 auf der CD-Platine mit einem Draht kurzschließen (siehe Abb. 12).

- **Einbau des CD-Players**
  1. Den ausgebauten CD-Player senkrecht zum hinteren Gehäuse einbauen, siehe Abb. 13.
  2. Den CD-Player in die CD-Player-Einheit einsetzen. Den CD-Player mit den beiden Vorsprüngen des Gehäuses ausrichten (siehe Abb. 13).
  3. Die Test-Disc und den Magneten in dieser Reihenfolge in den CD-Player einsetzen (siehe Abb. 14).

  Hinweis: Beim Einbau darauf achten, daß die Test-Disc nicht die Netzteil-Platine berührt.

  4. Nach dem Einbau den CD-Player einstellen.

- **Wiedergabe der Test-Disc**
  1. Die Sicherheitsschalter S820, 821 betätigen, siehe Abb. 14.
  2. Durch Drücken der Wiedergabe/Stop-Taste die CD-Wiedergabe-Betriebsart wählen.

ELEKTRISCHE EINSTELLUNG

Verwendete Geräte
- Servo-Verstärkungs-Einsteller (SZZP1017F)
- Test-Discs:
  Test-Disc (SZZP1014F) alte oder neue Ausführung
  Prüf-Test-Disc (SZZP1054C)
  Unebene Disc (SZZP1056C)
  Schwarzband-Disc (SZZP1057C)
- Normale Disc
- Zweikanal-Oszilloskop (mit Auslöser) von 30 MHz oder mehr
- Niederfrequenz-Oszillator
- Zwischenstecker (SZZP1032F)

Hinweis: Vor den Einstellungen sicherstellen, daß der Funktionswähler auf "CD" steht.

Einstellverfahren

Schritt 1: Best-Eye-Einstellung (PD-Balance)
↓
Schritt 2: Den Servo-Verstärkungs-Einsteller anschließen.
↓
Schritt 3: Fokus-Verstärkungs-Einstellung
↗
Schritt 4: Spurlagen-Verstärkungs-Einstellung
↓
Schritt 5: Fokus-Versatz-Einstellung
↓
Schritt 6: Spurlagen-Versatz-Einstellung
↗
Schritt 7: Spurlagen-Versatz-Balance-Einstellung
↓
Schritt 8: Überprüfung der Wiedergabe nach der Einstellung

BEST-EYE-EINSTELLUNG (PD-BALANCE)

1. Die Kurzschlußbrücke von CP705 in die ursprüngliche Position einstecken.
2. Kanal 1 des Oszilloskops an TP703 (+) und TP701 (−) der Haupt-Platine anschließen.

   Oszilloskop-Einstellung: VOLT ... 200 mV
   WOBBEL ... 0,5 μsec.
   EINGANG ... AC
3. Den Netzschalter des CD-Players einschalten und eine Test-Disc (SZZP1014F oder SZZP1054C) einsetzen.
4. Den CD-Player auf Wiedergabe schalten.
5. VR701 so einstellen, daß das Augenmuster des HF-Signals maximal gestreckt ist.

FOKUS-VERSTÄRKUNG-EINSTELLUNG

1. Die Kurzschlußbrücke abtrennen und den Servo-Verstärkungs-Einsteller anschließen.
2. Den Servo-Verstärkungs-Einsteller anschließen.
3. Den Wahlschalter des Servo-Verstärkungs-Einstellers auf 2 und den ON-OFF-Schalter auf ON stellen.
4. Den Niederfrequenz-Oszillator auf eine Frequenz von 1 kHz und eine Ausgangsspannung von 50 mVs-s einstellen. Dann den Oszillator an die Klemmen OSC (+) und GND (−) des Servo-Verstärkungs-Einstellers anschließen.
5. Kanal 1 und Kanal 2 des Oszilloskops an TP1 und TP2 des Servo-Verstärkungs-Einstellers anschließen. (TP3 ist die Masseklemme.)

   Oszilloskop-Einstellung: VOLT ... 100 mV (beide Kanäle)
   WOBBEL ... 1 msec.
   EINGANG ... DC
6. Den Netzschalter des CD-Players einschalten und eine Test-Disc (SZZP1014F oder SZZP1054C) einsetzen.
7. Den CD-Player auf Wiedergabe schalten.
8. Den Wahlschalter des Servo-Verstärkungs-Einstellers von "2" auf "3" stellen.
9. 1-kHz-Signale werden auf dem Oszilloskop angezeigt. VR704 so einstellen, daß die Wellenform-Amplituden beider Kanäle gleich werden.
10. Den Wahlschalter des Servo-Verstärkungs-Einstellers von "3" auf "2" stellen.

SPURLAGEN-VERSTÄRKUNGS-EINSTELLUNG

1. Die Oszilloskop-Einstellungen und -Anschlüsse sind gleich wie oben.
2. Den Niederfrequenz-Oszillator auf eine Frequenz von 1 kHz und eine Ausgangsspannung von 50 mVs-s einstellen.
3. Den Netzschalter des CD-Players einschalten und eine Test-Disc (SZZP1014F oder SZZP1054C) einsetzen.
4. Den CD-Player auf Wiedergabe schalten.
5. Den Wahlschalter des Servo-Verstärkungs-Einstellers von “2” auf “1” stellen.
6. 1-kHz-Signale werden auf dem Oszilloskop angezeigt. VR705 so einstellen, daß die Wellenform-Amplituden beider Kanäle gleich werden.
7. Den Wahlschalter des Servo-Verstärkungs-Einstellers von “1” auf “2” stellen.

Hinweis: Wenn im Handbuch angegeben, den Drehschalter auf “2” stellen und den ON/OFF-Schalter des Servo-Verstärkungs-Einstellers (SZZP1017F) auf “ON” stellen.

FOKUS-VERSATZ-EINSTELLUNG

1. Kanal 1 des Oszilloskops an TP703 (+) und TP701 (−) der Haupt-Platine anschließen.
   Kanal 2 des Oszilloskops an TP705 (+) und TP701 (−) der Haupt-Platine anschließen.
   Oszilloskop-Einstellung: VOLT ... 100 mV (Kanal 1), 200 mV (Kanal 2)
   WOBBEL ... 0,5 msec.
   EINGANG ... DC (Kanal 1), AC (Kanal 2)
   BETRIEBSART ... NORM
   (Auslösung über Kanal 2)
2. Den Netzschalter des CD-Players einschalten und die Test-Disc (SZZP1057C) einsetzen.
3. Den CD-Player auf Wiedergabe schalten.
4. Die Wellenform von Kanal 1 und Kanal 2 auf dem Oszilloskop überprüfen und VR703 so einstellen, daß die Wellenform um den Auslösungspunkt wie abgebildet wird.

SPURLAGEN-VERSATZ-EINSTELLUNG

1. Kanal 1 des Oszilloskops an TP703 (+) und TP701 (−) der Haupt-Platine anschließen.
   Kanal 2 des Oszilloskops an TP704 (+) und TP701 (−) der Haupt-Platine anschließen.
   Oszilloskop-Einstellung: VOLT ... 100 mV (Kanal 1), 200 mV (Kanal 2)
   WOBBEL ... 1 msec.
   EINGANG ... DC (Kanal 1), AC (Kanal 2)
   BETRIEBSART ... NORM
   (Auslösung über Kanal 2)
2. Den Netzschalter des CD-Players einschalten und die Test-Disc (SZZP1057C) einsetzen.
3. Den CD-Player auf Wiedergabe schalten.
4. Die Wellenform von Kanal 1 und Kanal 2 auf dem Oszilloskop überprüfen und VR706 so einstellen, daß die Wellenform um den Auslösungspunkt wie abgebildet wird.

SPURLAGEN-VERSATZ-BALANCE-EINSTELLUNG

1. Den Niederfrequenz-Oszillator auf eine Frequenz von 1,1 kHz und eine Ausgangsspannung von 150 mVs-s einstellen. Dann den Oszillator an die Klemmen OSC (+) und GND (−) des Servo-Verstärkungs-Einstellers anschließen.
2. Kanal 1 des Oszilloskops an TP703 (+) und TP701 (−) der Haupt-Platine anschließen.
   Oszilloskop-Einstellung: VOLT ... 200 mV
   WOBBEL ... 0,5 mV
   EINGANG ... AC
3. Den Netzschalter des CD-Players einschalten und eine Test-Disc (SZZP1014F oder SZZP1054C) einsetzen.
4. Den CD-Player auf Wiedergabe schalten.
5. Den Wahlschalter des Servo-Verstärkungs-Einstellers von “2” auf “1” stellen.
6. VR702 so einstellen, daß die Ausgangs-Wellenform wie abgebildet wird (Zittern ist minimal).
7. Den Wahlschalter des Servo-Verstärkungs-Einstellers von “1” auf “2” stellen.
8. Den Netzschalter des CD-Players ausschalten.
9. Den Servo-Verstärkungs-Einsteller abtrennen und die Kurzschlußbrücke von CP705 an der ursprünglichen Position einstecken.
10. Den Zuleitungsdraht von der Rückseite des Steckers CS701 entfernen (siehe Abb. 12).

ÜBERPRÜFUNG DER WIEDERGABE NACH DER EINSTELLUNG

Überprüfung des Überspring-Suchlaufs

1. Eine normale Disc wiedergeben.
2. Die Überspring-Taste drücken und den Überspring-Suchlauf (vorwärts und rückwärts) überprüfen.

Überprüfung des manuellen Suchlaufs.

1. Eine normale Disc wiedergeben.
2. Die Taste für manuellen Suchlauf drücken und überprüfen, ob einwandfreier manueller Suchlauf mit niedriger und hoher Geschwindigkeit (vorwärts und rückwärts) durchgeführt werden kann.

Überprüfung der Wiedergabe

1. Die Test-Disc (SZZP1054C) wiedergeben.
2. Titel Nr. 6 (Keil 0,7 mm) wiedergeben und sicherstellen, daß keine Tonausfälle oder Geräusche vorhanden sind.
3. Titel Nr. 13 (schwarzer Punkt 0,7 mm) wiedergeben und sicherstellen, daß keine Tonausfälle oder Geräusche vorhanden sind.

Zur Beachtung: Für diese Überprüfung unbedingt Kopfhörer verwenden. Keinesfalls die Lautsprecher verwenden, weil damit keine korrekten Ergebnisse erhalten werden.

EINSTELLUNG DES OPTISCHEN ABTASTERS

Meßinstrumente und Spezialwerkzeuge

- Zweikanal-Oszilloskop (mit Auslöser) von 30 MHz oder mehr
- Test-Discs
  Test-Disc (SZZP1014F) alte oder neue Ausführung
  Prüf-Test-Disc (SZZP1054C)
  Unebene Disc (SZZP1056C)
- Sechskantschlüssel
- Schrauben-Sicherungsfarbe (RZZ0L01)
- Fühlerlehre (RZZ0297)

EINSTELLUNG DER PLATTENTELLER-HÖHE

1. Die 0,9 mm Fühlerlehre (RZZ0297) wie unten gezeigt einführen.
2. Die Plattenteller-Höhe mit der Fühlerlehre auf 0,9 mm einstellen, siehe Abb. 2.
3. Die Plattenteller-Einstellschraube mit einem 1,27 mm Sechskantschlüssel einstellen.
4. Den Fokus-Versatz (VR703) einstellen.
5. Wenn VR703 während der Einstellung außerhalb des Regelbereichs kommt, die Plattenteller-Höhe geringfügig einstellen.

MECHANISCHE EINSTELLUNG

1. Kanal 1 des Oszilloskops an TP703 (+) und TP701 (−) der Haupt-Platine anschließen.
   Oszilloskop-Einstellung: VOLT ... 200 mV
   WOBBEL ... 0,2 μsec.
   EINGANG ... AC
2. Den Netzschalter des CD-Players einschalten, die Test-Disc (SZZP1056C) einsetzen und Titel Nr. 5 wiedergeben.
3. Mit den Tasten für manuellen Suchlauf den Abtaster so bewegen, daß die Schrauben für mechanische Einstellung mit den Einstellöffnungen in der Bodenplatte zusammenkommen.
4. Das HF-Signal auf dem Oszilloskop überwachen und die beiden Einstellschrauben abwechselnd mit dem 2 mm Sechskantschlüssel einstellen, so daß die vertikalen Schwankungen des HF-Signals minimal werden und das Augenmuster so gestreckt wie möglich ist.
5. Den Netzschalter des CD-Players ausschalten.
6. Nach der Einstellung Schrauben-Sicherungsfarbe (RZZ0L01) auf die Einstellschrauben auftragen.

Hinweis: Die Schrauben für mechanische Einstellung werden ab Werk mit Schrauben-Sicherungsfarbe versehen und sind daher eventuell schwer zu drehen.

Portable Stereo CD System

RX-DT50

FRANÇAIS

■ CARACTERISTIQUES

Généralités:	
Alimentation:	[E, EG, EF, EI] ... CA: 220 V, 50 Hz [EB] ... CA: 240 V, 50 Hz Piles: 12V (8X piles R20P/LR20 pour lampe torche) DC IN: 12 ~ 13,2 V (avec l'adaptateur pour batterie auto RP-952, en option) φ 6
Consommation:	30 W (CA uniquement)
Puissance de sortie:	Musicale ... 50 W (2 × 25 W) Puissance musicale...25W (2 × 12,5W)
Haut-parleurs:	2 × 10 cm (2,7Ω)
Entrée:	EXT MIC: sensibilité 5 mV/impédance du microphone comprise entre 200 et 600Ω, φ 3,5
Sortie:	CD: 0,92Vrms (CD 0dB) HEADPHONES: 32Ω (8~50Ω), Φ3,5
Dimensions:	690(L) × 177(H) × 167(P) mm
Poids:	5,3 kg sans les piles
Section CD	
Fréquence d'échantillonnage:	44,1 kHz
Convertisseur D/A:	Linéaire, 16 bits
Capteur:	FF-1 (1 faisceau)
Source lumineuse:	Semi-conducteur à laser (longueur d'onde 780 nm)
Nombre de voies:	2 (stéréo)
Réponse en fréquence:	20 ~ 20.000 Hz (+1/−3 dB)
Rapport S/B:	97 dB (1 kHz)
Pleurage et scintillement:	Non mesurables
Section radio:	
Gammes de fréquence:	FM: 87,5 ~ 108 MHz GO: 148,5 ~ 285 MHz PO: 520 ~ 1610 kHz
Fréquences intermédiaires:	FM: 10,7 MHz [E, EG, EF, EI]...AM (GO/PO) 455kHz [EB]...AM (GO/PO) 459kHz
Sensibilité:	FM: 2 μV/50 mW en sortie (sensibilité limite −3 dB) LW: 126 μV/m/50 mW en sortie MW: 142 μV/m/50 mW en sortie
Section magnétophone:	**Platine 1**
Réponse en fréquence:	40 ~ 15.000 Hz (avec une bande normale) 40 ~ 16.000 Hz (avec une bande CrO_2)
Vitesse de défilement:	4,8cm/s
Nombre de pistes:	4 pistes, 2 voies (stéréo), lecture
Section magnétophone:	**Platine 2**
Réponse en fréquence:	40 ~ 15.000 Hz (avec une bande normale) 40 ~ 16.000 Hz (avec une bande CrO_2)
Dispositif d'enregistrement:	Polarisation CA, effacement CA
Vitesse de défilement:	4,8cm/s
Nombre de pistes:	4 pistes, 2 voies (stéréo), lecture et enregistrement

La conception et les caractéristiques peuvent être modifiées sans préavis.

Notes (relatives à la section tuner):

1. S1-1 ~ S1-8: Sélecteur de gamme sur la position FM (F ... FM, L ... GO, M ... PO)
2. S2: Sélecteur de mode FM/interrupteur de battement sur la position "STEREO/II". (M/I...MONO/I, ST/II...STEREO/II, ST/III...STEREO/III)
3. VR1: Résistance variable de réglage du VCO FM
4. Les tensions continues sont mesurées à l'aide d'un voltmètre électronique et par rapport au pôle négatif des piles.
   [ ] ... FM, ( ) ... AM (PO, GO)
5. Seul le numéro est indiqué sur la liste des pièces de rechange.
6. L'indication (■) repère un point de test. Exemple: TP1 = point de test 1.

- **Le schéma peut être modifié à tout moment pour des raisons techniques.**

Notes (relatives à la section de commande principale et à celle du mécanisme)

1. S101-1 ~ S101-6: Sélecteur de fonctions sur la position "TAPE/POWER OFF". (T ... TAPE/POWER OFF, R ... RADIO. CD ... CD)
2. S102: Sélecteur de bande sur la position "NORMAL TAPE" (NO ... Bande normale, CR ... Bande au chrome)
3. S103: Sélecteur de vitesse de recopie sur la position "HIGH SPEED" (N ... Vitesse normale, H ... Grande vitesse)
4. S149: Interrupteur de réduction de bruit Dolby sur la position "OFF"
5. S151-1 ~ S151-8: Commutateur enregistrement/lecture sur la position "PLAYBACK". (P ... Lecture, R ... Enregistrement)
6. S201-1 ~ S201-3: Commutateur de sens de défilement sur la position "FORWARD" (F ... FORWARD, R ... REVERSE)
7. S202: Commutateur FF/REW sur la position "OFF".
8. S203: Commutateur PLAY sur la position "OFF".
9. S204: Interrupteur du moteur sur la position "OFF".

   Platine 1
10. S205: Interrupteur du moteur sur la position "OFF". ---------------------------------- Platine 2
11. S301: Commutateur AC/DC IN sur la position "AC IN". (D ... Alimentation CC, A ... Alimentation CA)
12. VR101: Résistance variable de réglage du courant de polarisation
13. VR102: Résistance variable de réglage de vitesse de défilement.
14. VR147, 247: Résistance variable de réglage d'enregistrement/lecture
15. VR148, 248: Résistance variable de réglage de lecture -------------------------------- Platine 1
16. VR149, 249: Résistance variable de réglage de lecture -------------------------------- Platine 2
17. VR301-1, VR301-2: Commande du niveau XBS
18. VR302-1, VR302-2: Commande de tonalité
19. VR303-1, VR303-2: Commande de niveau de sortie
20. Les tensions continues sont mesurées à l'aide d'un voltmètre électronique et par rapport au pôle négatif des piles.
    Aucune indication ... Lecture cassette, ( ) ... Enregistrement cassette, < > ... Lecture CD
21. Courant des piles: Aucun signal .... 130 mA (VR min.)
    Sortie maximum (VR max.)
    Radio ... 1070 mA
    Cassette (enregistrement) ... 280 mA
    Cassette (lecture) ... 1280 mA
    Cassette (enreg. CD) ... 1800 mA
    Lecture CD ... 1680 mA
22. Seul le numéro est indiqué sur la liste des pièces de rechange.
23. L'indication (■) repère un point de test. Exemple: **TP1** = point de test 1.
24. Importante remarque concernant la sécurité
    Les composants repérés par le symbole ⚠ ont des caractéristiques importantes pour la sécurité.
    Lors de leur remplacement, veiller à n'employer que les pièces indiquées par la fabricant.

- **Le schéma peut être modifié à tout moment pour des raisons techniques.**

Notes (relatives à la section CD et au fonctionnement de l'affichage)

1. S801: Touche 1
2. S802: Touche 2
3. S803: Touche 3
4. S804: Touche 4
5. S805: Touche 5
6. S806: Touche 6
7. S807: Touche 7
8. S808: Touche 8
9. S809: Touche 9
10. S810: Touche 10
11. S811: Touche+10

    Clavier numérique
12. S812: Commande saut/recherche (FWD ▶▶/▶▶|)
13. S813: Commande saut/recherche (REV ◀◀/|◀◀)
14. S814: Commutateur lecture/arrêt
15. S815: Commutateur pause/effacement
16. S816: Commutateur recherche/temps restant
17. S817: Interrupteur répétition
18. S818: Commutateur programme/rappel
19. S819: Interrupteur ATLS (Automatic Tape Level Setting)
20. S820: Interrupteur fermeture (détection de fermeture du volet CD)
21. S821: Interrupteur de mise en/hors service du laser
22. S822: Interrupteur de réinitialisation
23. VR701: Résistance variable de réglage de l'allure des signaux
24. VR702: Résistance variable de réglage de l'équilibrage de poursuite
25. VR703: Résistance variable de réglage de l'erreur de mise au point
26. VR704: Résistance variable de réglage du gain de mise au point
27. VR705: Résistance variable de réglage du gain de poursuite
28. VR706: Résistance variable de réglage de l'erreur de poursuite
29. Les tensions continues sont mesurées à l'aide d'un voltmètre électronique et par rapport au pôle négatif des piles.
    Aucune indication ... Lecture CD (1 kHz)
30. Seul le numéro est indiqué sur la liste des pièces de rechange.
31. L'indication (■) repère un point de test. Exemple: **TP1** = point de test 1.

- **Le schéma peut être modifié à tout moment pour des raisons techniques.**

MESURES ET REGLAGES

< SECTION TUNER >

■ METHODE D'ALIGNEMENT

Notes:
[E] ... Pour tous les pays européens à l'exception de [EB, EG, EF, EI]
[EB] ... Pour le Royaume-Uni [EG] ... Pour la RFA
[EF] ... Pour la France [EI] ... Pour l'Italie

LIRE ATTENTIVEMENT CE QUI SUIT AVANT DE PROCEDER AUX ALIGNEMENTS

- Régler la commande de niveau XBS sur la position minimum.
- Régler le potentiomètre de niveau de sortie au maximum.
- Régler la commande de tonalité au centre.
- Placer le sélecteur de fonction sur la position radio.
- Placer le sélecteur de gamme sur FM, PO ou GO.
- Placer le sélecteur de mode FM/interrupteur de battement sur la position STEREO/II ou STEREO/III.
- Régler la tension d'alimentation à 12 V CC.
- Le niveau de sortie du générateur de signaux ne doit pas être plus élevé qu'il n'est nécessaire pour obtenir une lecture.

APPAREILLAGE REQUIS

- Fréquencemètre
- Oscilloscope
- Voltmètre électronique
- Générateur de balayage FI
- Générateur de signaux AM et FM

■ ALIGNEMENTS PO et GO

	GAMME	GENERATEUR DE SIGNAUX OU GENERATEUR DE BALAYAGE		POSITION DE L'AIGUILLE SUR LE CADRAN	VOLTMETRE ELECTRONIQUE CA OU OSCILLOSCOPE	REGLAGE	REMARQUES
		BRANCHEMENTS	FREQUENCE				
	ALIGNEMENT DE LA FREQUENCE INTERMEDIAIRE AM						
(1)	PO	Confectionner une bobine de plusieurs tours de fil et placer cette bobine parcourue par le signal dans l'antenne du récepteur.	[E, EG, EF, EI] ... 455 kHz [EB] ... 459 kHz Taux de modulation: 30% à 400 Hz	Position pour laquelle il n'y a pas d'interférence (environ 600 kHz)	Prise casque (Voir figure 3)	T2 (AM IFT)	Régler pour obtenir une sortie maximum
	ALIGNEMENT RF EN GO						
(2)	GO	〃	[E, EB, EG, EF] ... 136 kHz [EI] ... 137 kHz	Condensateur d'accord complètement fermé	〃	L6 (bobine oscillateur GO)	〃
(3)	GO	〃	297 kHz	Condensateur d'accord complètement ouvert	〃	CT6 (trimmer oscillateur PO)	〃
(4)	GO	〃	145 kHz	Accorder sur le signal	〃	(*1) L3-1 (bobine antenne GO)	Régler pour obtenir une sortie maximum en déplaçant L3-1 sur le noyau de ferrite.
(5)	GO	〃	285 kHz	〃	〃	CT3 (trimmer antenne GO)	Régler pour obtenir une sortie maximum. Répéter les étapes 2 à 5.
	(*1) Fixer la bobine d'antenne à la cire après avoir achevé l'alignement						
	ALIGNEMENT RF EN PO						
(6)	PO	〃	[E, EB, EG, EF] ... 511 kHz [EI] ... 514 kHz	Condensateur d'accord complètement fermé	〃	L7 (bobine oscillateur PO)	Régler pour obtenir une sortie maximum.
(7)	PO	〃	[E, EB, EG, EF] ... 1.650 kHz [EI] ... 1,645 kHz	Condensateur d'accord complètement ouvert	〃	CT1-3 (trimmer oscillateur PO)	〃
(8)	PO	〃	550 kHz	Accorder sur le signal	〃	(*1) L3-2 (bobine antenne PO)	Régler pour obtenir une sortie maximum en déplaçant L3-2 sur le noyau de ferrite.
(9)	PO	〃	1.500 kHz	〃	〃	CT1-4 (trimmer antenne PO)	Régler pour obtenir une sortie maximum. Répéter les étapes 6 à 9.
	(*1) Fixer la bobine d'antenne à la cire après avoir achevé l'alignement.						

■ ALIGNEMENT FM

	GAMME	GENERATEUR DE SIGNAUX OU GENERATEUR DE BALAYAGE		POSITION DE L'AIGUILLE SUR LE CADRAN	VOLTMETRE ELECTRONIQUE CA OU OSCILLOSCOPE	REGLAGE	REMARQUES
		BRANCHEMENTS	FREQUENCE				
	ALIGNEMENT DE LA FREQUENCE INTERMEDIAIRE FM						
(1)	FM	Signal sur le point de test TP3 à travers un condensatour de 0,01 µF pôle négatif sur le point de test TP2.	10,7 MHz (excursion de 400 Hz)	Position pour laquelle il n'y a pas d'interférence (environ 90 MHz)	Brancher l'entrée du balayage vertical de l'oscilloscope sur le point de test TP5, le pôle négatif étant relié au point de test TP4.	T1 (1er transistor FI)	La forme d'onde est indiquée dans la Fig. 1
(2)	FM	〃	〃	〃	〃	T3 (2ème transistor FI)	La forme d'onde est indiquée dans la Fig. 2
	ALIGNEMENT RF EN FM						
(3)	FM	Brancher sur le point de test TP1 à travers une antenne fictive, le pôle négatif étant relié au point de test TP2.	[E, EB, EF] ... 86,2 MHz [EG, EI] ... 87,38 MHz	Condensateur d'accord compltement fermé.	Prise casque (Voir figure 3)	L2 (bobine oscillateur FM)	(*2) Régler pour obtenir une sortie maximum.
(4)	FM		[E, EB, EI] ... 109,2 MHz [EG, EI] ... 108,3 MHz	Condensateur d'accord complètement ouvert.	〃	CT1-2 (trimmer oscillateur FM)	〃
(5)	FM		106 MHz	Accorder sur le signal	〃	CT1-1 (trimmer antenne FM)	(*2) Régler pour obtenir une sortie maximum. Répéter les étapes 3 à 5.

(*2) Il y a trois sorties; la syntonisation adéquate est obtenue pour la fréquence centrale.

REGLAGE DE LA SEPARATION

	BRANCHEMENT DU GENERATEUR DE SIGNAUX FM	FREQUENCEMETRE ELECTRONIQUE	POINT DE REGLAGE (Voir figure 1.)	CARACTERISTIQUES	REMARQUES
(6)	98 MHz, 60 dB (porteuse pure). Brancher sur le point de test TP1 à travers une antenne fictive FM, le pôle négatif étant relié au point de test TP2.	TP6 ... (+) TP7 ... (−)	VR1	19 kHz	Sélecteur de mode FM/interrupteur de battement sur la position STEREO. Régler VR1 de sorte que le fréquencemètre électronique indique 19 kHz (± 50 Hz).

<SECTION MAGNETOPHONE>

■ METHODE DE REGLAGE

LIRE ATTENTIVEMENT CE QUI SUIT AVANT DE PROCEDER AUX REGLAGES

- Placer le sélecteur de fonction sur la position TAPE/OFF.
- Régler la commande de niveau de sortie au maximum.
- Régler la commande de niveau XBS au minimum.
- Régler la commande de tonalité au centre.
- Placer le sélecteur de type de bande sur NORMAL ou CrO_2.
- Placer le sélecteur de mode FM/interrupteur de battement sur la position STEREO/II ou STEREO/III.
- Placer l'interrupteur Dolby sur la position OFF.
- Régler la tension d'alimentation à 12 V CC.
- Le niveau de sortie du générateur de signaux ne doit pas être plus élevé qu'il n'est nécessaire pour obtenir une lecture.

APPAREILLAGE REQUIS

- Fréquencemètre
- Voltmètre électronique
- Oscilloscope
- Bandes d'essai QZZCFM: 315 Hz, 0 dB • 8 kHz, −20 dB
  QZZCWAT: 3 kHz, −10 dB

RUBRIQUE	BANDE D'ESSAI	POINT DE MESURE	POINT DE REGLAGE	PROCEDURE
(A) Azimut	QZZCFM (8 kHz, −20 dB)	Prise casque (Voir figure 3)	Vis de réglage de l'azimut (Voir figure 4, 5)	Régler la vis tout en faisant défiler la bande dans les deux sens (en lecture) pour obtenir un niveau maximum et identique dans les deux voies.

RUBRIQUE	BANDE D'ESSAI	POINT DE MESURE	POINT DE REGLAGE	PROCEDURE
(B) Vitesse de défilement	QZZCWAT (3kHz, −10dB)	Prise casque (Voir figure 3)	VR102	Réglage de la vitesse normale de défilement 1. Placer la bande d'essai (QZZCWAT) dans la platine [2] et commander sa lecture. 2. Régler VR102 de sorte que la valeur lue soit égale à 3000 Hz $^{+40}_{-20}$ Hz 3. Procéder de la même manière avec la platine [1] et s'assurer de la conformité avec les spécifications. Platine [1] ... ±30 Hz par rapport à la vitesse de la platine [2]. Dans le cas contraire, reprendre les étapes 1 et 2 ci-dessus. Remarque: Cet appareil comprenant un seul moteur, veiller à effectuer le réglage sur la platine [2]. Réglage de la vitesse rapide de défilement 4. Court-circuiter les points de test TP10 et TP11 pour obtenir la vitesse de défilement rapide. (Voir le schéma des circuits et le plan de câblage) 5. Vérifier que la vitesse mesurée est au moins 1,7 fois plus grande que la vitesse normale.
(C) Courant de polarisation (platine 2 uniquement)	Utiliser une bande normale ou au chrome	TP21 ... (+) TP20 ... (−)	VR101	Mode enregistrement Sélecteur de mode FM/interrupteur de battement sur la position STEREO/II • Normale ... 12 mV ±0,3 mV • CrO_2 ...... 18 mV ±1,5 mV Voir la figure 6.
(D) Fréquence du courant de polarisation (platine 2 uniquement)	Utiliser une bande normale.	TP21 ... (+) TP20 ... (−)	L151	Mode enregistrement Sélecteur de mode FM/interrupteur de battement sur la position STEREO/III • Normale ... 72 kHz ±0,3 kHz Voir la figure 6.
(E) Niveau de lecture	QZZCFM (315 Hz, 0 dB)	Voie G TP22 ... (+) TP23 ... (−) Voie D TP24 ... (+) TP23 ... (−)	Platine 1 Voie G ... VR148 Voie D ... VR248 Platine 2 Voie G ... VR149 Voie D ... VR249	[Platine 1] (1) Régler l'appareil en mode lecture. (2) Régler VR148 et VR248 de sorte que la valeur lue sur la voltmètre électronique soit égale à 15 mV ±0,5 dB. [Platine 2] Procéder de même avec VR149 et VR249.
(F) Niveau d'enregistrement/ lecture	QZZCFM (315 Hz, 0 dB) Bande vierge	Voie G TP22 ... (+) TP23 ... (−) Voie D TP24 ... (+) TP23 ... (−)	Voie G ... VR147 Voie D ... VR 247	(1) Placer la bande d'essai QZZCFM dans la platine 1 et une bande vierge dans la platine 2. (2) Régler l'appareil pour la recopie à la vitesse normale. (3) Régler VR147 et VR247 de manière que la différence entre le niveau de lecture sur la platine 1 et le niveau d'enregistrement sur la platine 2 soit égale à 1 dB.

■ SECTION CD

Procéder comme il est dit ci-dessous pour vérifier ou régler la section CD.

Remarques:

1. Même si l'appareil est sous tension, la diode laser n'est en service que si le volet du compartiment pour CD est fermé et que les interrupteurs S820 et S821 sont actionnés.
2. Ne pas regarder l'objectif du capteur à laser lorsque le volet du compartiment pour CD est retiré et que les interrupteurs S820 et S821 sont actionnés.
3. Lors de la lecture du disque d'essai (SZZP1054C), placer les commandes comme suit:
   - Commande de niveau (VR303) ... 1/4
   - Commande de niveau XBS (VR301) ... Minimum
   - Commande de tonalité (VR302) ... Centre

■ PREPARATION

1. Retirer la face avant en procédant comme il est expliqué aux étapes 1 à 3 des pages 7 à 9.
   Ne pas débrancher le connecteur des haut-parleurs (CS503)
2. Déposer le lecteur de CD en procédant aux étapes 5 et 6.
3. Déposer l'ensemble du volet et du panneau comme il est dit aux étapes 27 et 28. Appuyer, dans la direction de la flèche, sur les trois languettes de verrouillage pour retirer l'aimant. (Voir figures 10 et 11.)
4. Court-circuiter les bornes 2 et 4 du connecteur CS701 sur le circuit imprimé du lecteur. (Voir figure 12.)

■ INSTALLATION DU LECTEUR DE CD

1. Poser le lecteur de CD perpendiculairement au coffret arrière, comme le montre la figure 13.
2. Introduire le lecteur de CD dans le coffret. Positionner le lecteur en se servant des deux protubérances comme repères. (Voir la figure 13.)
3. Introduire, dans l'ordre, le disque d'essai et l'aimant. (Voir le figure 14.)

Remarque: Au cours de ces opérations d'installation, veiller à ce que le disque d'essai ne vienne pas en contact avec le circuit imprimé qui porte l'alimentation.

4. Procéder au réglage du lecteur de CD, après son installation.

■ LECTURE DU DISQUE D'ESSAI

1. Actionner les interrupteurs S820 et S821. (Voir la figure 14.)
2. Choisir le mode de lecture au moyen de la touche de lecture/arrêt.

REGLAGES ELECTRIQUES

Appareillage requis

- Dispositif de réglage du gain d'asservissement (SZZP1017F)
- Disques d'essai:
  Disque d'essai (SZZP1014F) nouveau ou ancien modèle
  Disque de contrôle (SZZP1054C)
  Disque voilé (SZZP1056C)
  Disque à zone noire (SZZP1057C)
- Disque ordinaire
- Oscilloscope double trace (avec déclenchement), 30 MHz ou mieux
- Générateur basse fréquence
- Connecteur d'adaptation (SZZP1032F)

Remarque: Avant de procéder aux réglages, s'assurer que le sélecteur de fonction est sur CD.

Procédure de réglage

Etape 1: Réglage de l'équilibrage du photodétecteur
↓
Etape 2: Branchement du dispositif de réglage du gain d'asservissement
↓
Etape 3: Réglage du gain de mise au point

Etape 4: Réglage du gain de poursuite
↓
Etape 5: Réglage de l'erreur de mise au point
↓
Etape 6: Réglage de l'erreur de poursuite

Etape 7: Réglage de l'équilibrage de l'erreur de poursuite
↓
Etape 8: Vérification de la lecture après réglage

REGLAGE DE L'EQUILIBRAGE DU PHOTODETECTEUR

1. Placer le connecteur de court-circuit de CP705 dans sa position d'origine.
2. Brancher CH1 de l'oscilloscope sur TP703 (+) et TP701 (−) du circuit imprimé principal.
   Réglage de l'oscilloscope: Tension ... 200 mV
   Balayage ... 0,5 μs
   Entrée ... CA
3. Placer l'interrupteur d'alimentation du lecteur sur la position ON et introduire un disque d'essai (SZZP1014F ou SZZP1054C).
4. Régler le lecteur pour la lecture.
5. Régler VR701 de sorte que la trace du signal radiofréquence soit aussi allongée que possible.

REGLAGE DU GAIN DE MISE AU POINT

1. Débrancher le connecteur de court-circuit.
2. Brancher le dispositif de réglage du gain d'asservissement.
3. Placer le sélecteur du dispositif de réglage du gain sur la position 2 et l'interrupteur ON/OFF sur la position ON.
4. Régler le générateur basse fréquence sur 1 kHz avec un niveau de sortie de 50 mVc-c. Brancher ce générateur entre les bornes OSC (+) et GND (−) du dispositif de réglage du gain d'asservissement.
5. Brancher CH1 et CH2 de l'oscilloscope sur TP1 et TP2 du dispositif de réglage du gain. (TP3 est à la masse.)
   Réglage de l'oscilloscope: Tension ... 100 mV (pour les deux traces)
   Balayage ... 1 ms
   Entrée ... CC
6. Placer l'interrupteur d'alimentation du lecteur sur la position ON et introduire un disque d'essai (SZZP1014F ou SZZP1054C).
7. Régler le lecteur pour la lecture.
8. Basculer le sélecteur du dispositif de réglage du gain d'asservissement de la position 2 à la position 3.
9. Les signaux 1 kHz apparaissent sur l'oscilloscope. Régler VR704 de sorte que l'amplitude des deux traces soit identique.
10. Basculer le sélecteur du dispositif de réglage du again d'asservissement de la position 3 à la position 2.

REGLAGE DU GAIN DE POURSUITE

1. Les branchements et les réglages de l'oscilloscope sont les mêmes que ci-dessus.
2. Régler le générateur basse fréquence sur 1 kHz avec un niveau de sortie de 50 mVc-c.
3. Placer l'interrupteur d'alimentation du lecteur sur la position ON et introduire un disque d'essai (SZZP1014F ou SZZP1054C).
4. Régler le lecteur pour la lecture.
5. Basculer le sélecteur du dispositif de réglage du gain d'asservissement de la position 2 à la position 1.
6. Les signaux 1 kHz apparaissent sur l'oscilloscope. Régler VR705 de sorte que l'amplitude des deux traces soit identique.
7. Basculer le sélecteur du dispositif de réglage du gain d'asservissement de la position 1 à la position 2.

Remarque: Lorsque cela est indiqué, placer le commutateur rotatif sur 2 et l'interrupteur ON/OFF du dispositif de réglage du gain (SZZP1017F) sur la position ON.

REGLAGE DE L'ERREUR DE MISE AU POINT

1. Brancher CH1 de l'oscilloscope sur TP703 (+) et TP701 (−) du circuit imprimé principal.
   Brancher CH2 de l'oscilloscope sur TP705 (+) et TP701 (−) du circuit imprimé principal.
   Réglage de l'oscilloscope: Tension ... 100 mV (CH1), 200 mV (CH2)
   Balayage ... 0,5 ms
   Entrée ... CC (CH1), CA (CH2)
   Mode ... Normal (déclenchement à partir de CH2)
2. Placer l'interrupteur d'alimentation du lecteur sur la position ON et introduire le disque d'essai (SZZP1057C).
3. Régler le lecteur pour la lecture.
4. Observer l'allure des signaux de CH1 et CH2 sur l'oscilloscope et régler VR703 de sorte que les traces au voisinage du point de déclenchement aient les formes de l'illustration.

REGLAGE DE L'ERREUR DE POURSUITE

1. Brancher CH1 de l'oscilloscope sur TP703 (+) et TP701 (−) du circuit imprimé principal.
   Brancher CH2 de l'oscilloscope sur TP704 (+) et TP701 (−) du circuit imprimé principal.
   Réglage de l'oscilloscope: Tension ... 100 mV (CH1), 200 mV (CH2)
   Balayage ... 1 ms
   Entrée ... CC (CH1), CA (CH2)
   Mode ... Normal (déclenchement à partir de CH2)
2. Placer l'interrupteur d'alimentation du lecteur sur la position ON et introduire le disque d'essai (SZZP1057C).
3. Régler le lecteur pour la lecture.
4. Observer l'allure des signaux de CH1 et CH2 sur l'oscilloscope et régler VR706 de sorte que les traces au voisinage du point de déclenchement aient les formes de l'illustration.

REGLAGE DE L'EQUILIBRAGE DE L'ERREUR DE POURSUITE

1. Régler le générateur basse fréquence sur 1,1 kHz avec un niveau de sortie de 150 mVc-c. Brancher ce générateur entre les bornes OSC (+) et GND (−) du dispositif de réglage du gain d'asservissement.
2. Brancher CH1 de l'oscilloscope sur TP703 (+) et TP701 (−) du circuit imprimé principal.
   Réglage de l'oscilloscope: Tension ... 200 mV
   Balayage ... 0,5 ms
   Entrée ... CA
3. Placer l'interrupteur d'alimentation du lecteur sur la position ON et introduire un disque d'essai (SZZP1014F ou SZZP1054C).
4. Régler le lecteur pour la lecture.
5. Basculer le sélecteur du dispositif de réglage du gain d'asservissement de la position 2 à la position 1.
6. Régler VR702 de sorte que l'allure du signal soit celle de l'illustration (gigue réduite au minimum).
7. Basculer le sélecteur du dispositif de réglage du gain d'asservissement de la position 1 à la position 2.
8. Placer l'interrupteur d'alimentation du lecteur sur la position OFF.
9. Débrancher le dispositif de réglage du gain d'asservissement et placer le connecteur de court-circuit de CP705 dans sa position d'origine.
10. Retirer le court-circuit établi sur le connecteur arrire CS701. (Voir figure 12.)

VERIFICATION DE LA LECTURE APRES REGLAGES

Vérification de la recherche

1. Lire un disque ordinaire.
2. Appuyer sur la touche de saut et vérifier la recherche (dans les deux sens).

Vérification de la recherche manuelle

1. Lire un disque ordinaire.
2. Appuyer sur la touche de recherche manuelle et s'assurer que la recherche s'effectue sans à-coups à petite et grande vitesses (dans les deux sens).

Vérification de la lecture

1. Lire le disque d'essai (SZZP1054C).
2. Lire la piste No. 6 (triangle 0,7 mm) et s'assurer qu'il n'y a ni perte de son ni bruit.
3. Lire la piste No. 13 (point noir 0,7 mm) et s'assurer qu'il n'y a ni perte de son ni bruit.

Remarque: Pour cette vérification, utiliser un casque car les haut-parleurs ne donnent pas un résultat correct.

Vérification du capteur

Appareillage de mesure et outillage spécial

- Oscilloscope double trace (avec déclenchement), 30 MHz ou mieux
- Disques d'essai:
  Disque d'essai (SZZP1014F) nouveau ou ancien modle
  Disque de contrôle (SZZP1054C)
  Disque voilé (SZZP1056C)
- Clé hexagonale
- Vernis de freinage (RZZ0L01)
- Jauge (RZZ0297)

REGLAGE DE LA PLATINE

1. Introduire la jauge de 0,9 mm (RZZ0297) comme il est indiqué ci-dessous.
2. A l'aide de la jauge, régler la hauteur de la platine à 0,9 mm comme le montre la figure 2.
3. Serrer les vis de la platine au moyen d'une clé hexagonale de 1,27 mm.
4. Régler l'erreur de mise au point (VR703).
5. Si VR703 est hors des limites de réglage, modifier légèrement la hauteur de la platine.

REGLAGE MECANIQUE

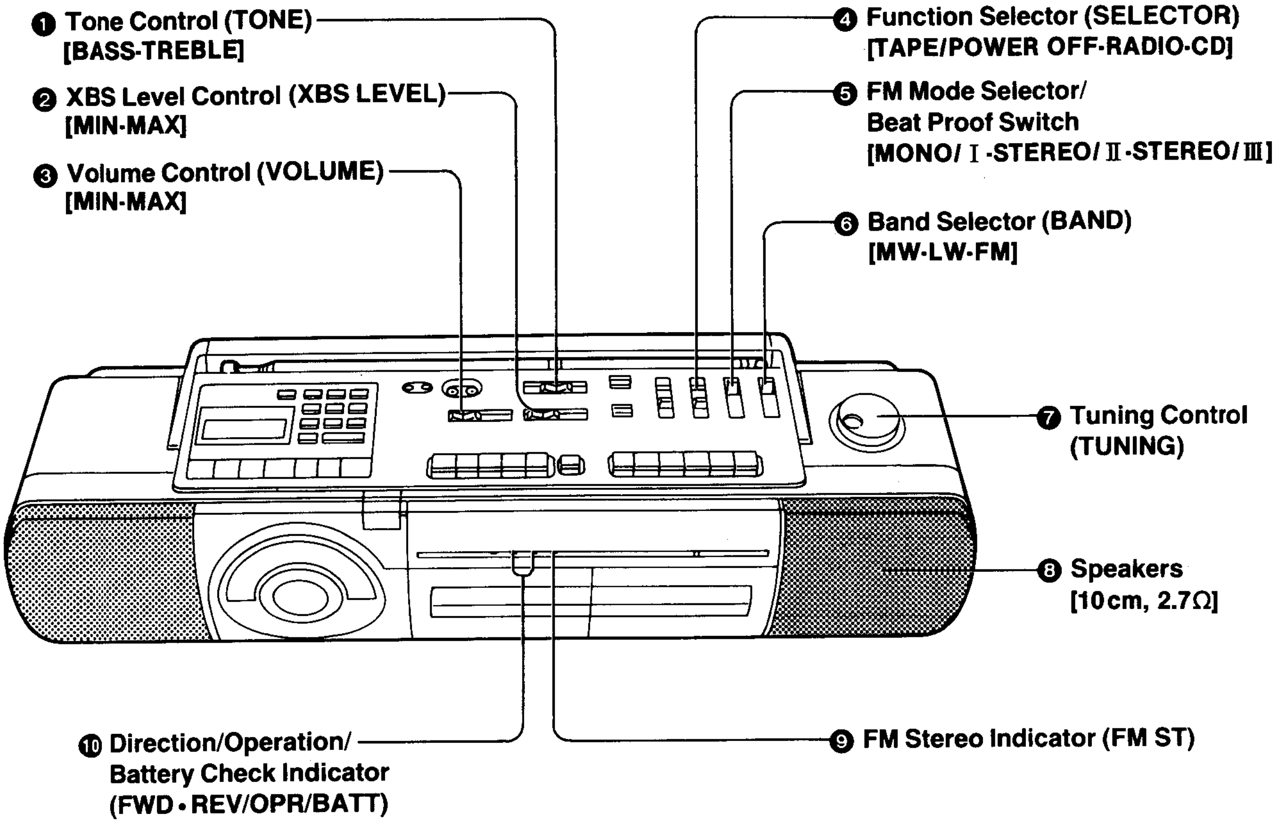
1. Brancher CH1 de l'oscilloscope entre TP703 (+) et TP701 (−) du circuit imprimé principal.
   Réglage de l'oscilloscope: Tension ... 200 mV
   Balayage ... 0,2 μs
   Entrée ... CA
2. Placer l'interrupteur d'alimentation du lecteur sur la position ON et introduire le disque d'essai (SZZP1056C). Lire la piste No. 5.
3. Déplacer le capteur au moyen des touches de recherche manuelle de manière que les vis de réglage mécanique apparaissent dans les trous de la plaque de fond.
4. Tout en observant le signal radiofréquence sur l'oscilloscope, régler alternativement les deux vis au moyen de la clé hexagonale de 2 mm de sorte que les fluctuations verticales du signal soient minimales et que les traces soient aussi allongées que possible.
5. Placer l'interrupteur d'alimentation du lecteur sur la position OFF.
6. Le réglage terminé, appliquer une goutte de vernis de freinage (RZZ0L01) sur les vis.

Remarque: Les vis ayant été freinées, en usine, avec un vernis, il peut être difficile de les tourner.

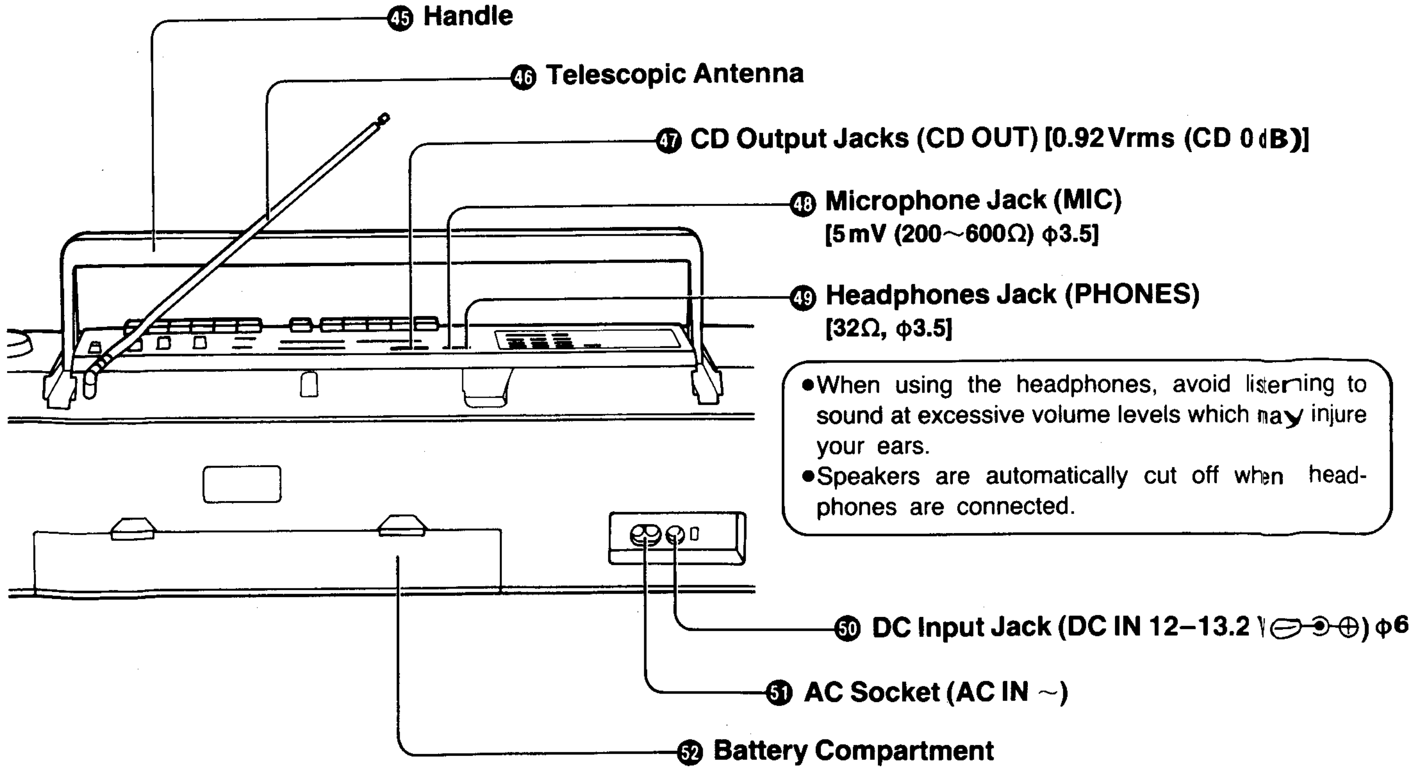
Printed in Japan
H880703900TM/HM

LOCATION OF CONTROLS

RADIO/GENERAL CONTROLS

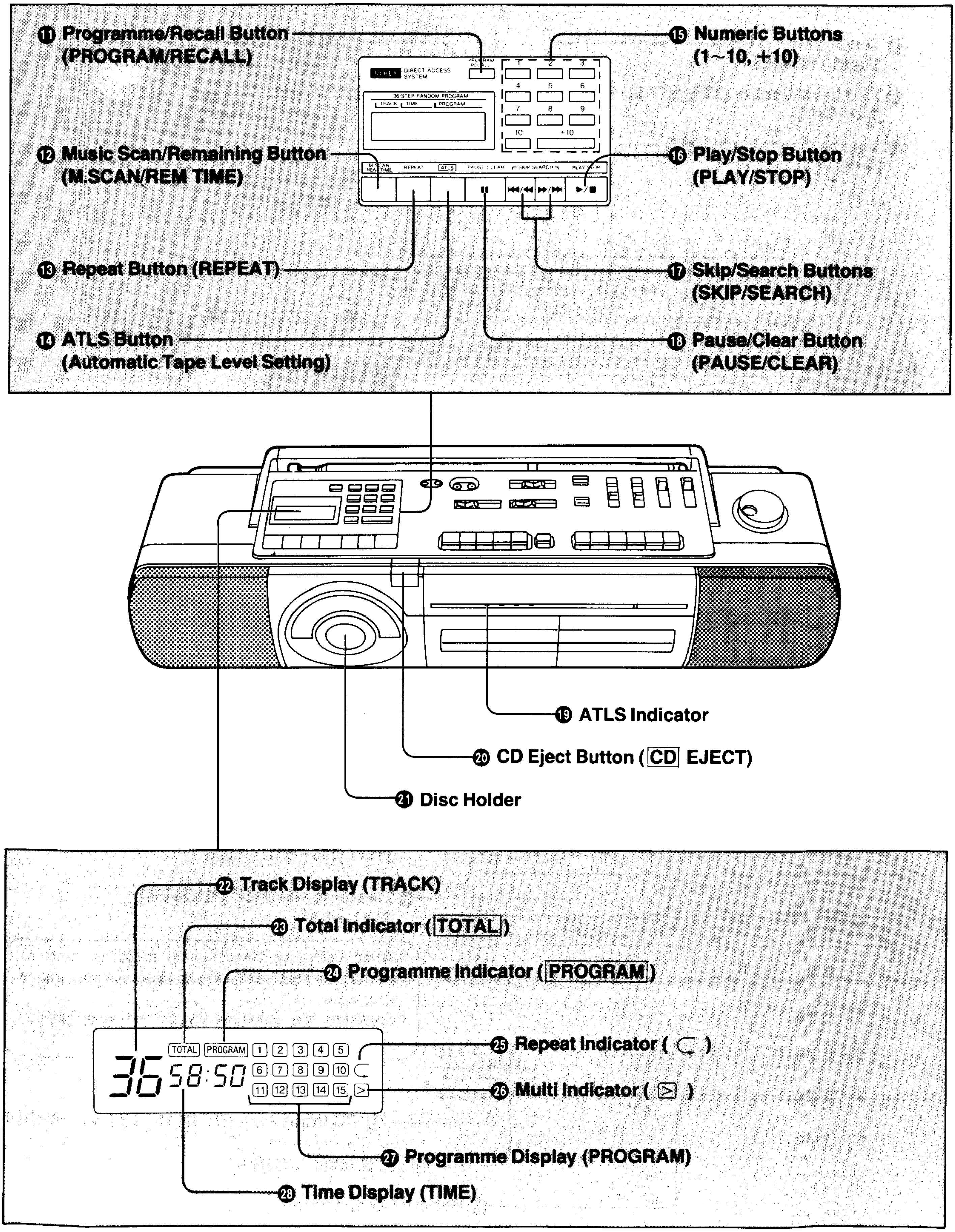

❶ Tone Control (TONE)
[BASS-TREBLE]
❷ XBS Level Control (XBS LEVEL)
[MIN-MAX]
❸ Volume Control (VOLUME)
[MIN-MAX]
❹ Function Selector (SELECTOR)
[TAPE/POWER OFF-RADIO-CD]
❺ FM Mode Selector/
Beat Proof Switch
[MONO/ I -STEREO/ II -STEREO/ III]
❻ Band Selector (BAND)
[MW-LW-FM]
❼ Tuning Control
(TUNING)
❽ Speakers
[10cm, 2.7Ω]
❾ FM Stereo Indicator (FM ST)
❿ Direction/Operation/
Battery Check Indicator
(FWD • REV/OPR/BATT)

JACKS AND REAR PANELS

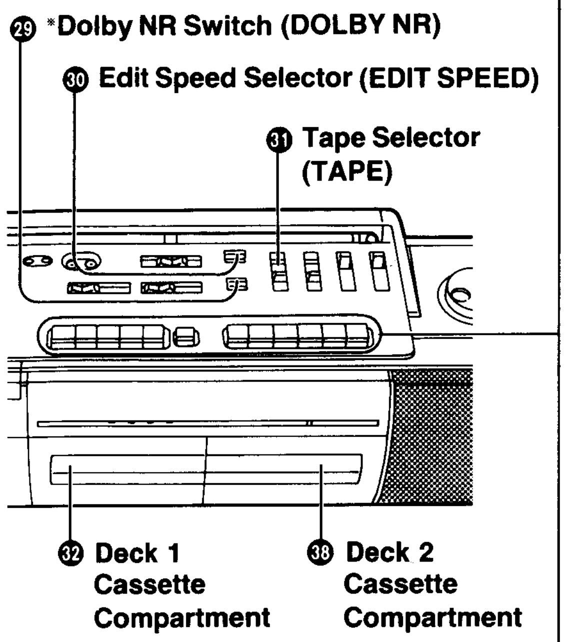

㊺ Handle
㊻ Telescopic Antenna
㊼ CD Output Jacks (CD OUT) [0.92Vrms (CD 0dB)]
㊽ Microphone Jack (MIC)
[5mV (200~600Ω) φ3.5]
㊾ Headphones Jack (PHONES)
[32Ω, φ3.5]
㊿ DC Input Jack (DC IN 12–13.2 V ⊖-◎-⊕) φ6
(51) AC Socket (AC IN ~)
(52) Battery Compartment

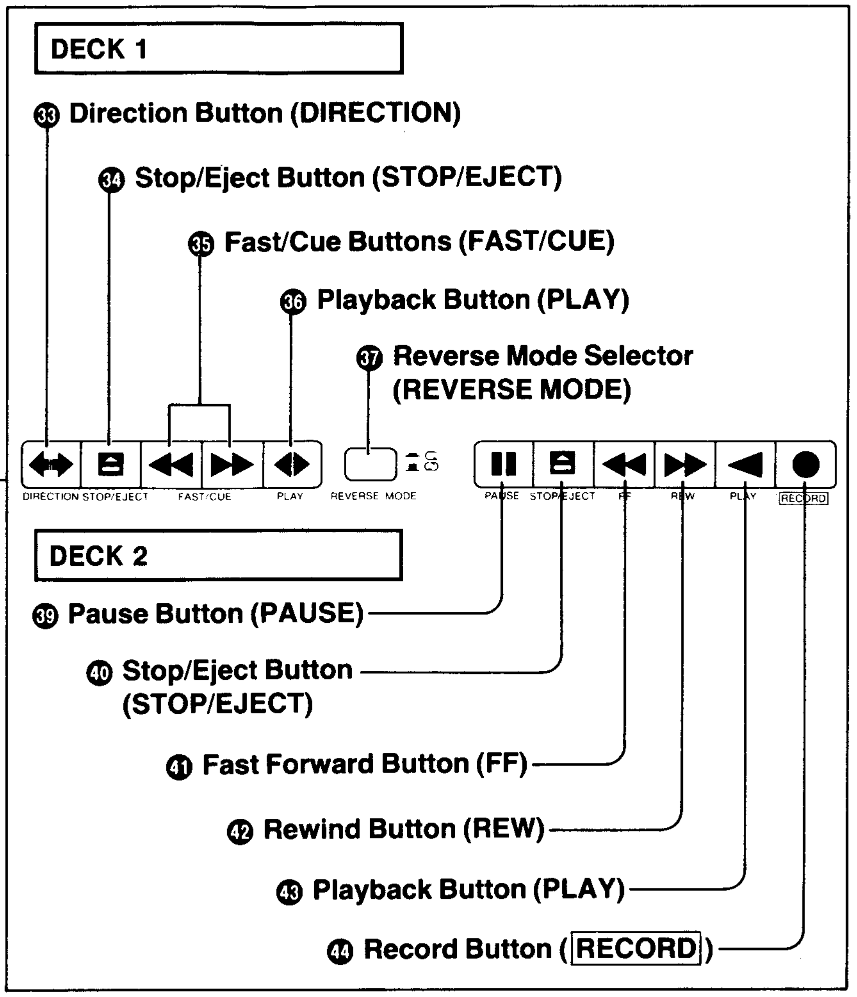
- When using the headphones, avoid listening to sound at excessive volume levels which may injure your ears.
- Speakers are automatically cut off when headphones are connected.

CD CONTROLS


⑪ Programme/Recall Button
(PROGRAM/RECALL)
⑫ Music Scan/Remaining Button
(M.SCAN/REM TIME)
⑬ Repeat Button (REPEAT)
⑭ ATLS Button
(Automatic Tape Level Setting)
⑮ Numeric Buttons
(1~10, +10)
⑯ Play/Stop Button
(PLAY/STOP)
⑰ Skip/Search Buttons
(SKIP/SEARCH)
⑱ Pause/Clear Button
(PAUSE/CLEAR)
DIRECT ACCESS SYSTEM
PROGRAM RECALL
36-STEP RANDOM PROGRAM
TRACK
TIME
PROGRAM
1
2
3
4
5
6
7
8
9
10
+10
M.SCAN REM TIME
REPEAT
ATLS
PAUSE CLEAR
SKIP SEARCH
PLAY STOP
⑲ ATLS Indicator
⑳ CD Eject Button (CD EJECT)
㉑ Disc Holder
㉒ Track Display (TRACK)
㉓ Total Indicator (TOTAL)
㉔ Programme Indicator (PROGRAM)
㉕ Repeat Indicator (⊂)
㉖ Multi Indicator (>)
㉗ Programme Display (PROGRAM)
㉘ Time Display (TIME)
TOTAL
PROGRAM
36
58:50
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15

TAPE DECK CONTROLS


㉙ *Dolby NR Switch (DOLBY NR)
㉚ Edit Speed Selector (EDIT SPEED)
㉛ Tape Selector (TAPE)
㉜ Deck 1 Cassette Compartment
㊳ Deck 2 Cassette Compartment


DECK 1
㉝ Direction Button (DIRECTION)
㉞ Stop/Eject Button (STOP/EJECT)
㉟ Fast/Cue Buttons (FAST/CUE)
㊱ Playback Button (PLAY)
㊲ Reverse Mode Selector (REVERSE MODE)
DIRECTION
STOP/EJECT
FAST/CUE
PLAY
REVERSE MODE
PAUSE
STOP/EJECT
FF
REW
PLAY
RECORD
DECK 2
㊴ Pause Button (PAUSE)
㊵ Stop/Eject Button (STOP/EJECT)
㊶ Fast Forward Button (FF)
㊷ Rewind Button (REW)
㊸ Playback Button (PLAY)
㊹ Record Button (RECORD)

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Noise Reduction System manufactured under license from Dolby Laboratories Licensing Corporation.

RECORDING (Tape 2)

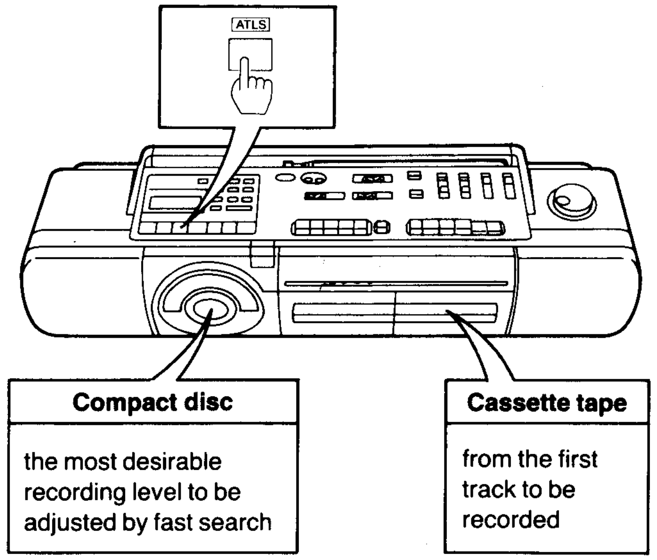
- This unit has an Automatic Level Control (the recording level is automatically adjusted).
- ATLS recording is recommended for recording from a compact disc.

Your attention is drawn to the fact that recording pre-recorded tapes or discs on other published or broadcast material may infringe copyright laws.

ATLS (Automatic Tape Level Setting) Recording

Since compact discs generally have wide dynamic range, the best recording results require careful setting of the record level.
Recording from a disc with high clarity is possible with the same ease as manual recording. If the ATLS Button is pressed in recording stand by mode, this unit will automatically scan (fast search) the disc, set the appropriate recording level, and then start the recording.

- The ATLS Indicator will flash in fast search mode and will light in recording mode.
- During the fast search, ATLS recording will be released when the ATLS Button is pressed again.
- When disc play is cancelled during ATLS recording, the set level will be released.

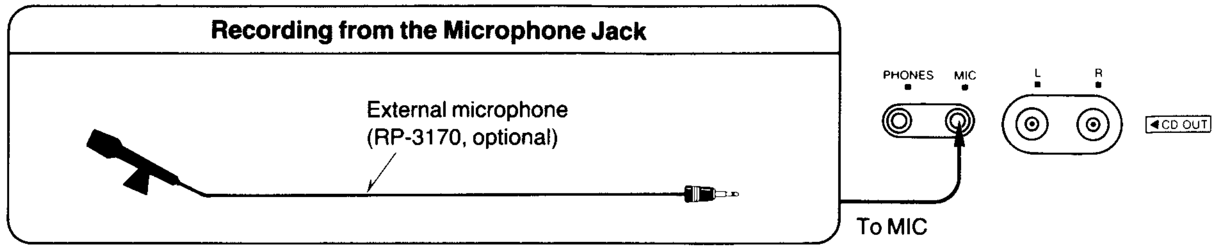

ATLS
Compact disc
the most desirable recording level to be adjusted by fast search
Cassette tape
from the first track to be recorded

CONNECTIONS

CONNECTIONS

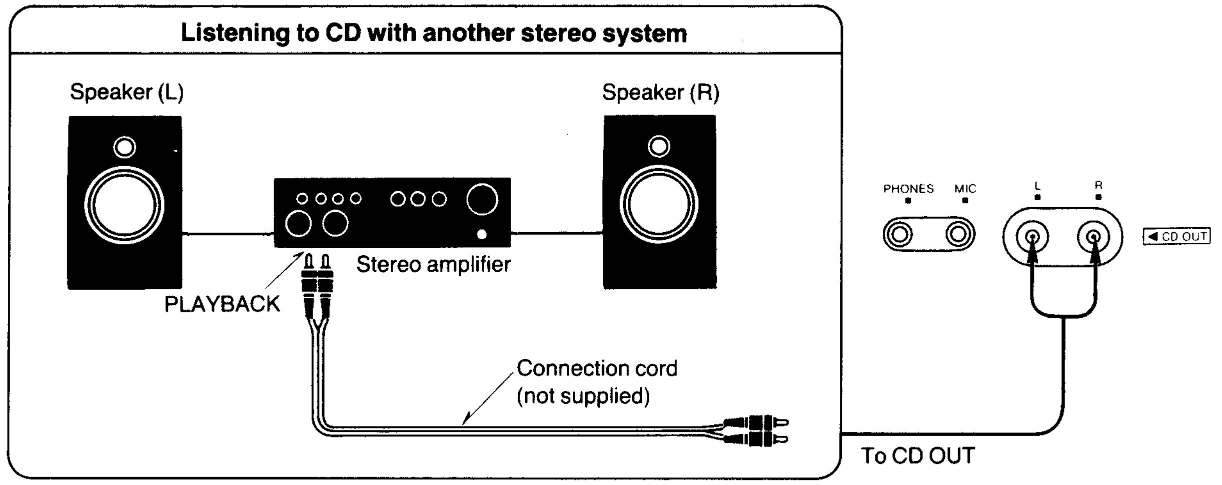
Function Selector..."TAPE/OFF"

Recording from the Microphone Jack

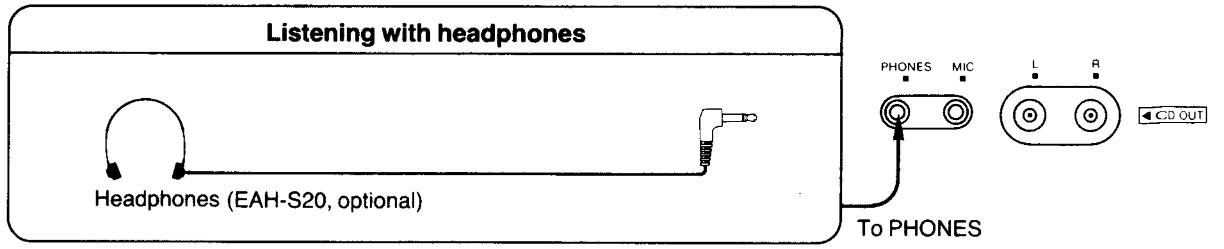

External microphone
(RP-3170, optional)
PHONES
MIC
L
R
◀CD OUT
To MIC

Function Selector..."CD"

Listening to CD with another stereo system


Speaker (L)
Speaker (R)
Stereo amplifier
PLAYBACK
Connection cord
(not supplied)
PHONES
MIC
L
R
◀CD OUT
To CD OUT

Listening with headphones


Headphones (EAH-S20, optional)
PHONES
MIC
L
R
◀CD OUT
To PHONES

IMPORTANT NOTE

When this unit is used with an AC adaptor connected to the DC-IN jack, use only the type of AC adaptor which has a fuse in its output circuitry. If a car adaptor is used, do not use any type except specified type.

VIKTIGT

När denna apparat används med en mättillsatys ansluten till "DC-IN"-ingången, använd endast sådan som har säkring i utgångskretsen. I fråga om biladapter, använd endast angiven typ.

DISASSEMBLY INSTRUCTIONS

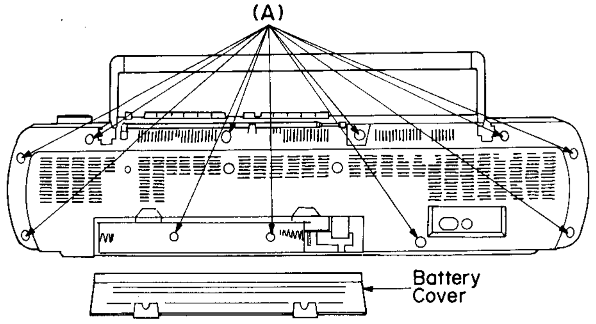

(A)
Battery Cover

Fig. 1

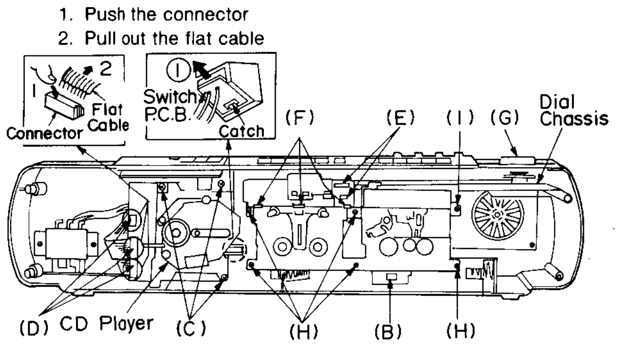

1. Push the connector
2. Pull out the flat cable
2
1
Flat Cable
Connector
①
Switch P.C.B.
Catch
(F)
(E)
(I)
(G)
Dial Chassis
(D) CD Player
(C)
(H)
(B)
(H)

Fig. 3

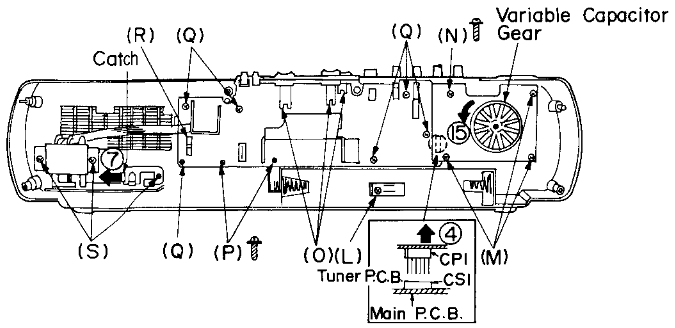

(R)
(Q)
Catch
(Q)
(N)
Variable Capacitor Gear
⑦
⑮
(S)
(Q)
(P)
(O)(L)
④
CPI
(M)
Tuner P.C.B.
CSI
Main P.C.B.

Fig. 5

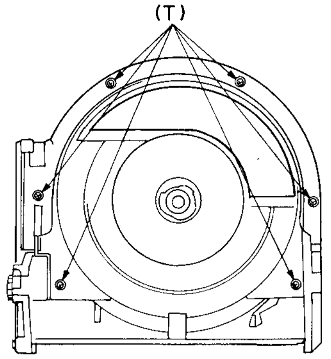


Fig. 8

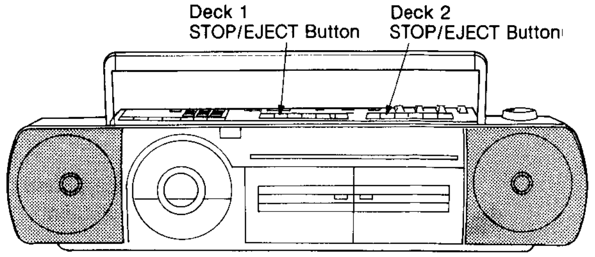

Deck 1 STOP/EJECT Button
Deck 2 STOP/EJECT Button

Fig. 2

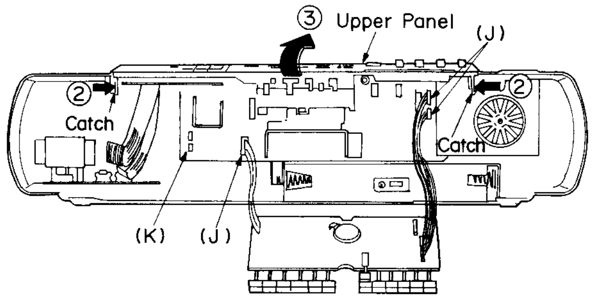

③ Upper Panel
(J)
②
Catch
②
Catch
(K)
(J)

Fig. 4

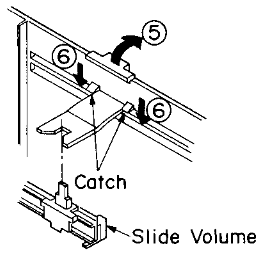

⑤
⑥
⑥
Catch
Slide Volume

Fig. 6

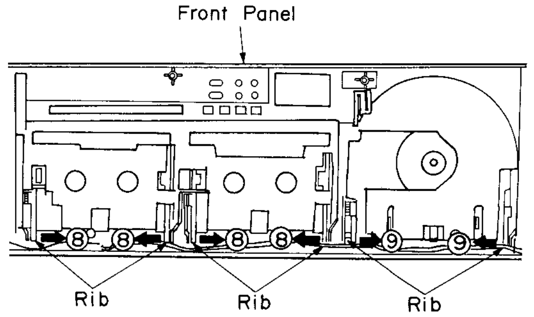

Front Panel
⑧
⑧
⑧
⑧
⑨
⑨
Rib
Rib
Rib

Fig. 7

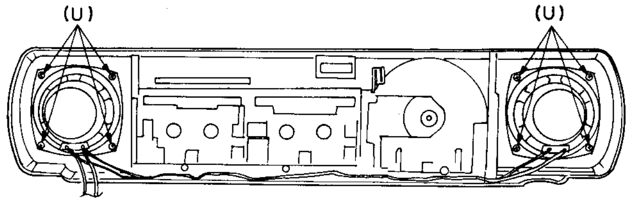


Fig. 9

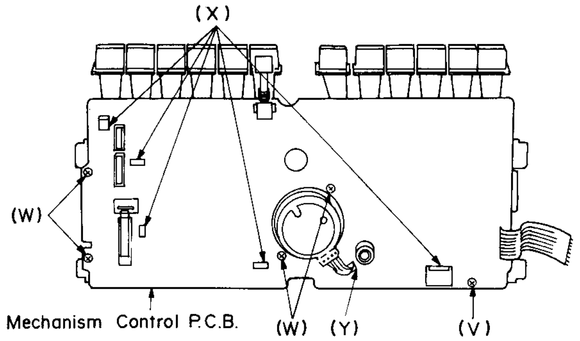

(X)
(W)
Mechanism Control P.C.B.
(W)
(Y)
(V)

Fig. 10

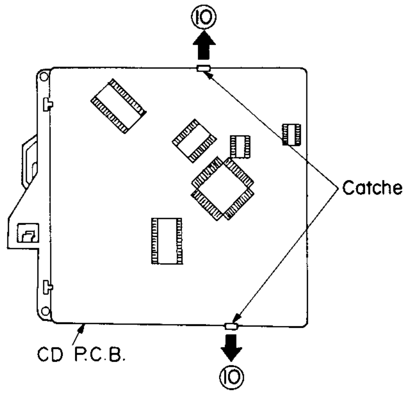

⑩
Catches
CD P.C.B.
⑩

Fig. 12

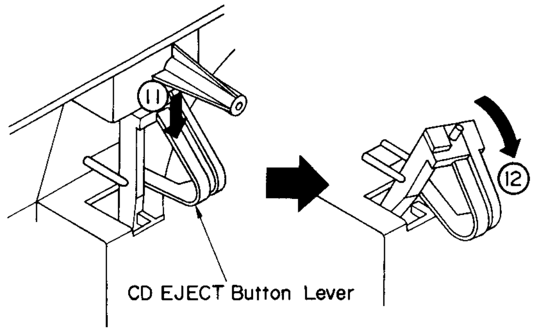

⑪
⑫
CD EJECT Button Lever

Fig. 14

HOW TO REPLACE THE CD EJECT BUTTON LEVER

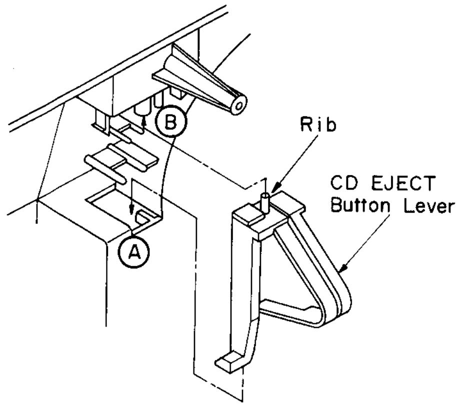

Ⓑ
Rib
CD EJECT Button Lever
Ⓐ

Fig. 16

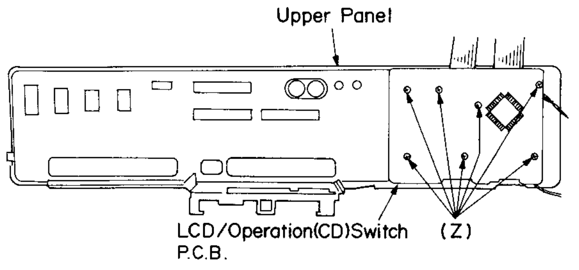

Upper Panel
LCD/Operation(CD)Switch P.C.B.
(Z)

Fig. 11

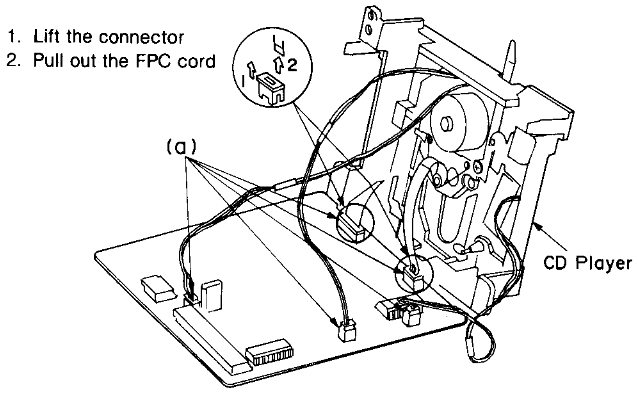

1. Lift the connector
2. Pull out the FPC cord
1
2
(a)
CD Player

Fig. 13

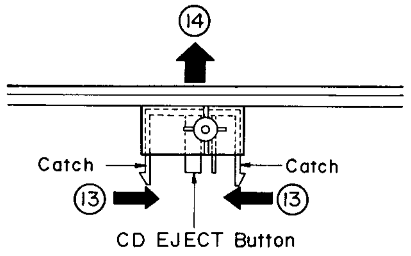

⑭
Catch
Catch
⑬
⑬
CD EJECT Button

Fig. 15

HOW TO REPLACE THE CASSETTE COVER SPRING

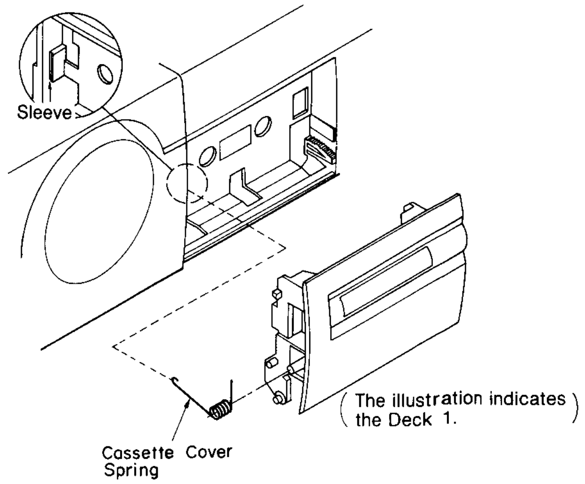

Sleeve
Cassette Cover Spring
(The illustration indicates the Deck 1.)

Fig. 17

▼ Be sure to fold at the (▼) mark so that mark is on the outside.

Steps.	Shown in Fig. —.	To remove —.	Remove —.
1	1	Front Cabinet	Remove the batter cover.
2			Screw (3×50)mm .... (A)×11
3	2		Press the "STOP/EJECT" buttons of Deck 1 and Deck 2.
4	3		Connector (CP503) .... (B)×1
5	3	CD Player	Screw (3×12)mm .... (C)×3
6			Connectors (CS701, CS702, CS703) .... (D)×3
7	3	Switch P.C.B.	Disengage the catches and pull out the switch P.C.B. in the direction of the arrow ①.
8	3	LED P.C.B.	Connectors (CP500, CP501) .... (E)×2
9			Disengage the catches .... (F)×3
10	3	Dial Chassis	Tuning knob .... (G)×1
11	3	Mechanism Ass'y (Deck 1, Deck 2)	Screw (3×12)mm .... (H)×5
12			Screw (3×50)mm .... (I)×1
13	4		Connectors (CS157, CS158, CS159) .... (J)×3
14	4	Upper Panel	Connector (CP801) .... (K)×1
15			Push the catches in the direction of the arrow ② and remove the upper panel in the direction of the arrow ③.
16	5	Connection P.C.B.	Screw (3×12)mm .... (L)×1
17	5	Tuner P.C.B.	Screw (3×12)mm .... (M)×3
18			Screw (3×12)mm (with washer) .... (N)×1
19			Remove the tuner P.C.B. in the direction of arrow ④. [Be careful not to bend connector CP1.]
20	5, 6	Slide knob (Volume, Tone, XBS Level)	Remove the slide volume knob in the direction of arrow ⑤ and disengages the catches in the direction of arrow ⑥. ...... (O)×3
21	5	Main P.C.B.	Screw (3×12)mm (with washer) .... (P)×2
22			Screw (3×12)mm .... (Q)×6
23			Connector (CP502) .... (R)×1
24	5	Power Supply P.C.B.	Screw (3×12)mm .... (S)×3
25			Disengage the catch in the direction of the arrow ⑦ and pull out the P.C.B.
26	7	Cassette Cover (※1)	Remove the ribs in the direction of arrow ⑧ by pushing it with a regular screwdriver.
27	7	CD Player Cover (※1)	Remove the ribs in the direction of arrow ⑨ by pushing it with a regular screwdriver.
28	8	CD Cover Panel	Screw (2×6)mm .... (T)×6
29	9	Speaker	Screw (3×10)mm .... (U)×8
30	10	Mechanism Control P.C.B.	Screw (2.6×6)mm .... (V)×1
31			Screw (2.6×6)mm .... (W)×4
32			Connectors (CP151, CP152, CP153, CP154, CP155) .... (X)×5
33			Connector .... (Y)×1
34	11	LCD/Operation (CD) Switch P.C.B.	Screw (2×6)mm .... (Z)×7
35	12	CD P.C.B. (※2)	Push the catches in the direction of arrow ⑩ and remove the CD P.C.B.
36	13		Connectors (CP701, 702, 703, CS705) .... (a)×5
37	14	CD EJECT Button Lever	Push the CD eject button lever in the direction of arrow ⑪ and remove it in the direction of arrow ⑫.
38	15	CD EJECT Button	Push the catches in the direction of arrow ⑬ and remove the CD EJECT Button in the direction of arrow ⑭.

Notes:

(※1) As the cassette cover and CD cover assembly ribs are very stiff, take care not to break them.

(※2) Insert a shorting chip to the flexible P.C.B. so as to prevent damages to the laser diode by static electricity.

■ HOW TO REPLACE THE CD COVER SPRING

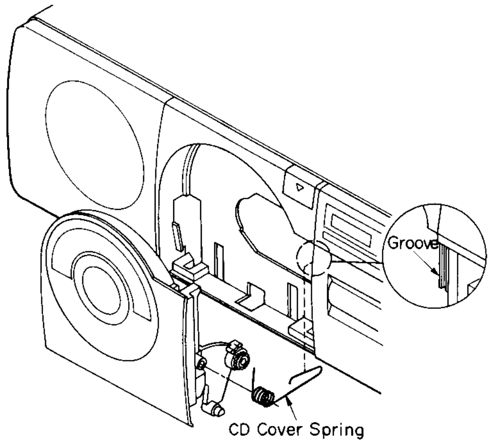


Fig. 18

■ CAUTION ON ASSEMBLY OF MAIN P.C.B.

Insert the battery terminal between the support and the main P.C.B. and join them together with the screw.

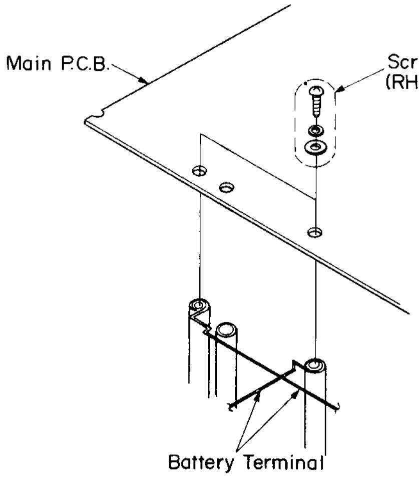


Fig. 20

■ DIAL SETTING POINT

1. Turn the variable capacitor (variable condencer gear) completely in the direction of arrow ⑮ toward the position "F min" (See Fig. 5).
2. Move the needle on the dial chassis to the left end (zero). (See Fig. 23)
3. In this condition, assemble the dial chassis into the rear cabinet.

■ HOW TO REPLACE THE BATTERY TERMINAL

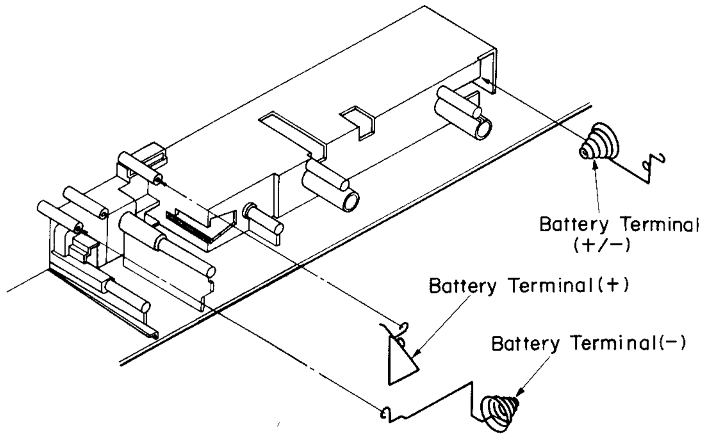


Fig. 19

■ REPLACEMENT OF SPEAKER WIRE

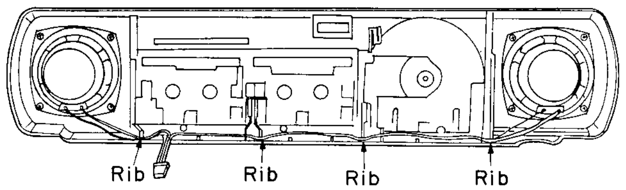
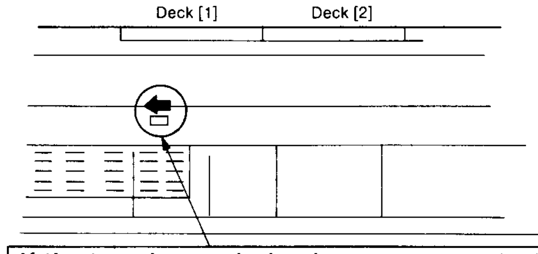


Fig. 21

■ HOW TO RELEASE THE TAPE CATCHING

(Bottom View)



If the tape is caught by the capstan or pinch roller during playing or recording and the cassette tape cannot be taken out, insert the head of thin slotted screwdriver into the hole of rear cabinet, and turn the motor pulley in the direction of arrow to release the tape.

Fig. 22

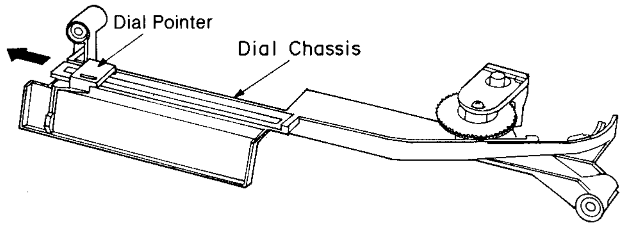


Fig. 23

HAN

The las
clothes
So, be

- **Ha**

1. Do
bec
2. To p
stat
(FP
Whe
job
3. Tak
boa
4. Do
mer

- **Gro**

1. Hum
Use
elec
2. Wor
Put
area
shee

Caution
The sta
throug
clothes

.... (A)×11
1 and Deck 2.
.... (B)×1
.... (C)×3
.... (D)×3
tch P.C.B. in the
.... (E)×2
.... (F)×3
.... (G)×1
.... (H)×5
.... (I)×1
.... (J)×3
.... (K)×1
w ② and remove ③.
.... (L)×1
.... (M)×3
.... (N)×1
rrow ④.
ion of arrow ⑤ and arrow ⑥. ...... (O)×3
.... (P)×2
.... (Q)×6
.... (R)×1
.... (S)×3
rrow ⑦ and pull out
y pushing it with a
y pushing it with a
.... (T)×6
.... (U)×8
.... (V)×1
.... (W)×4
P155) .... (X)×5
.... (Y)×1
.... (Z)×7
nd remove the
.... (a)×5
of arrow ⑪ and
nd remove the

city.

■ HOW TO REPLACE THE CD COVER SPRING

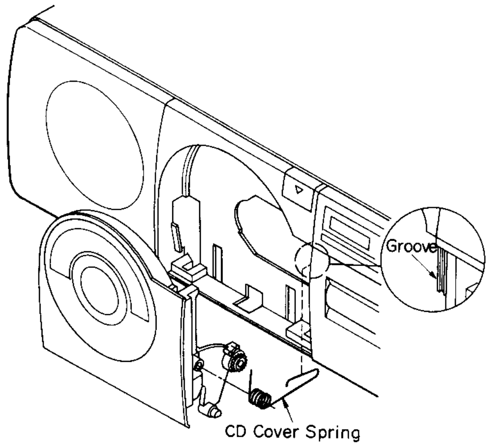

Groove
CD Cover Spring

Fig. 18

■ CAUTION ON ASSEMBLY OF MAIN P.C.B.

Insert the battery terminal between the support and the main P.C.B. and join them together with the screw.

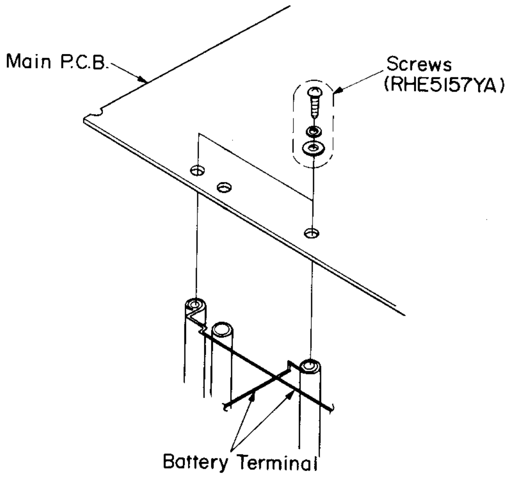

Main P.C.B.
Screws
(RHE5157YA)
Battery Terminal

Fig. 20

■ DIAL SETTING POINT

1. Turn the variable capacitor (variable condencer gear) completely in the direction of arrow ⑮ toward the position "F min" (See Fig. 5).
2. Move the needle on the dial chassis to the left end (zero). (See Fig. 23)
3. In this condition, assemble the dial chassis into the rear cabinet.

■ HOW TO REPLACE THE BATTERY TERMINAL

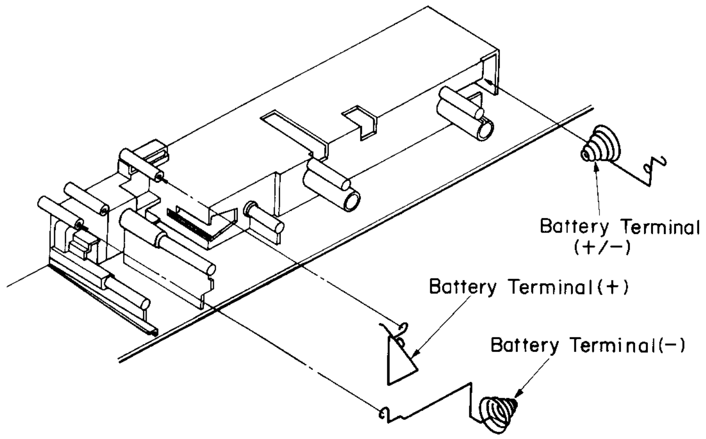

Battery Terminal
(+/−)
Battery Terminal(+)
Battery Terminal(−)

Fig. 19

■ REPLACEMENT OF SPEAKER WIRE

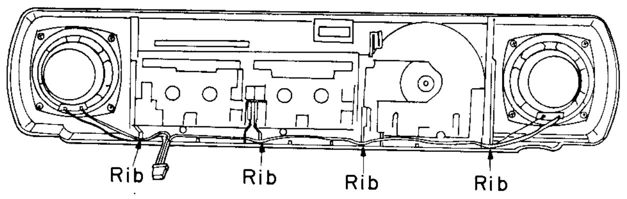
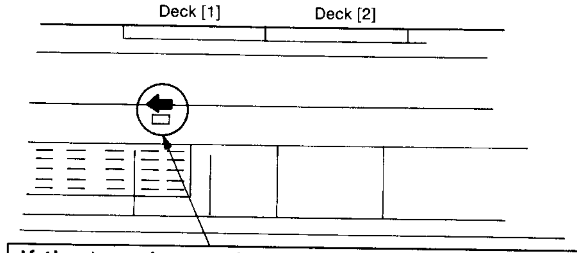

Rib
Rib
Rib
Rib

Fig. 21

■ HOW TO RELEASE THE TAPE CATCHING

(Bottom View)


Deck [1]
Deck [2]

If the tape is caught by the capstan or pinch roller during playing or recording and the cassette tape cannot be taken out, insert the head of thin slotted screwdriver into the hole of rear cabinet, and turn the motor pulley in the direction of arrow to release the tape.

Fig. 22

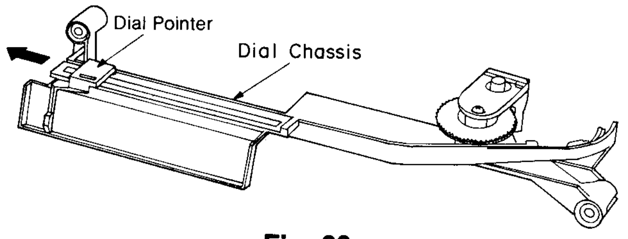

Dial Pointer
Dial Chassis

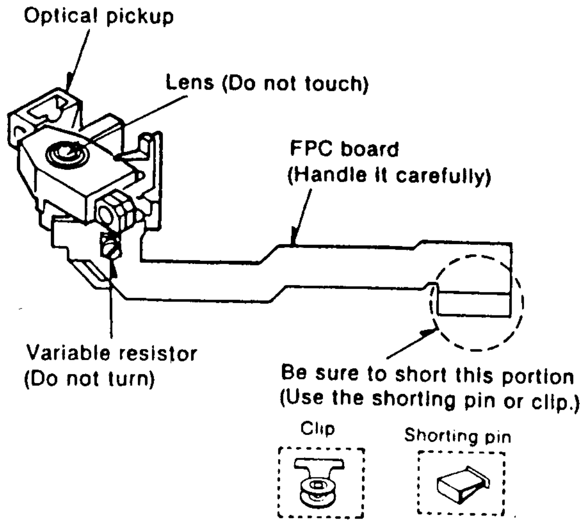
Fig. 23

HANDLING PRECAUTIONS FOR OPTICAL PICKUP

The laser diode in the optical pickup may break down due to potential difference caused by static electricity of clothes or human body.
So, be careful of electrostatic breakdown during repair of the optical pickup.

• Handling of optical pickup

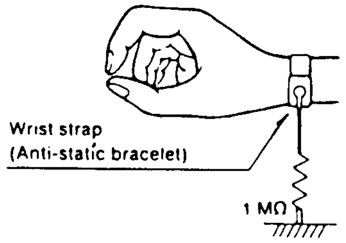
1. Do not give excessive shock to the optical pickup because it is of extremely precise structure.
2. To prevent the breakdown of the laser diode, an anti-static shorting pin is inserted into the flexible board. **(FPC board)**
   When removing or connecting the short pin, finish the job in as short time as possible.
3. Take care not to apply excessive stress to the flexible board. **(FPC board)**
4. Do not turn the variable resistor (laser power adjustment). It has already been adjusted.

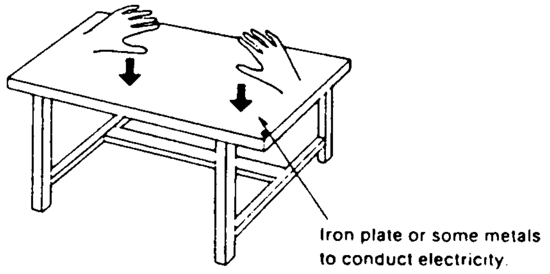

Optical pickup
Lens (Do not touch)
FPC board
(Handle it carefully)
Variable resistor
(Do not turn)
Be sure to short this portion
(Use the shorting pin or clip.)
Clip
Shorting pin

• Grounding for electrostatic breakdown prevention

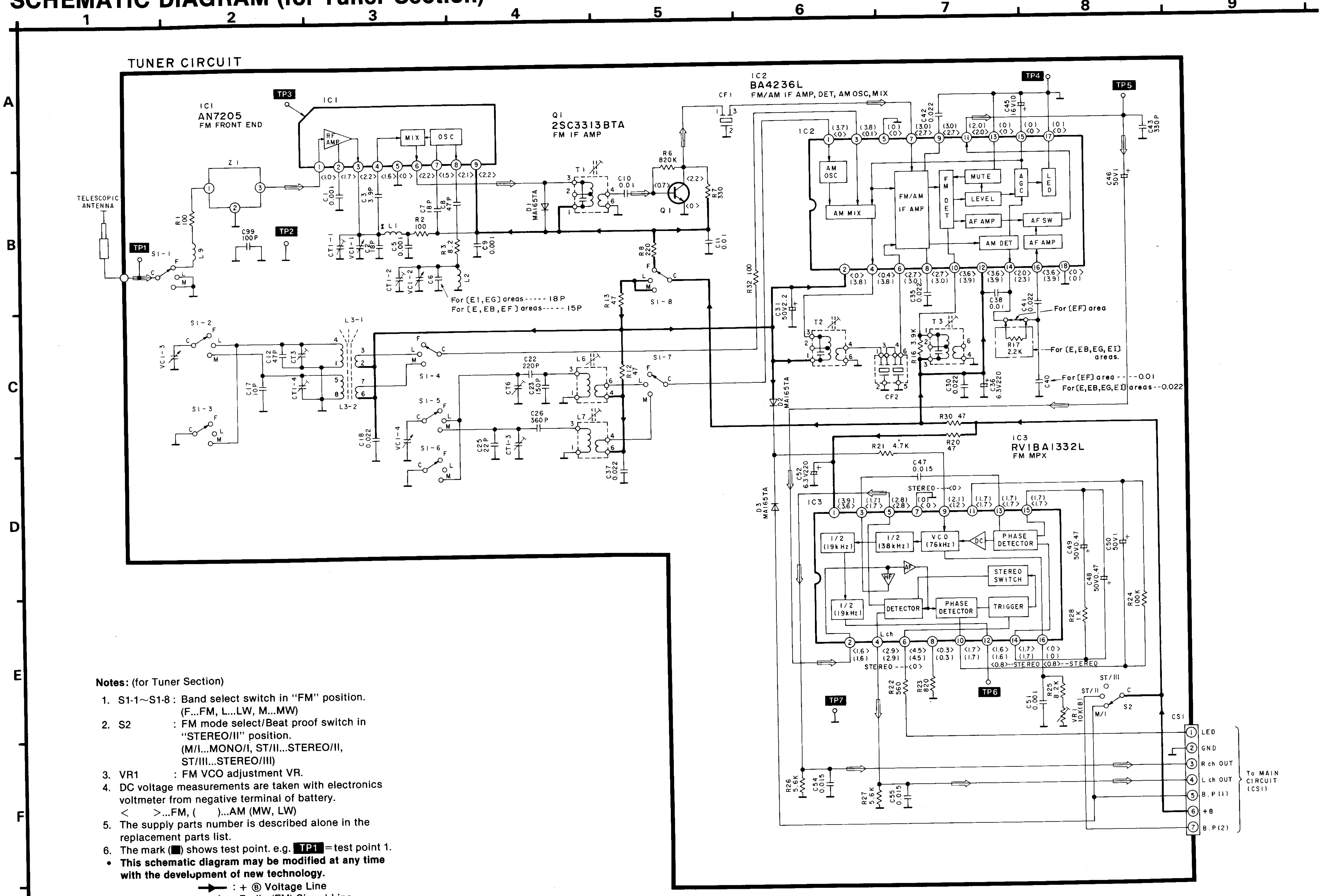
1. Human body grounding
   Use the anti-static wrist strap to relieve the static electricity from your body.
2. Work table grounding
   Put a conductive material (sheet) or steel sheet on the area where the optical pickup is placed, and ground the sheet.

Caution:
The static electricity of your clothes will not be grounded through the wrist strap. So, take care not to let your clothes touch the optical pickup.


Wrist strap
(Anti-static bracelet)
1 MΩ


Iron plate or some metals
to conduct electricity

SCHEMATIC DIAGRAM (for Tuner Section)


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
TUNER CIRCUIT
IC1
AN7205
FM FRONT END
TP3
IC1
RF AMP
MIX
OSC
Q1
2SC3313BTA
FM IF AMP
IC2
BA4236L
FM/AM IF AMP, DET, AM OSC, MIX
CF1
TP4
TP5
TELESCOPIC ANTENNA
TP1
TP2
Z1
R1 100
L9
S1-1
C99 100P
C1 0.001
C3 3.9P
C7 18P
C8 47P
R2 100
R3 8.2
L1
L2
C5 0.001
C9 0.001
CT1-1
VC1-1
C2 18P
CT1-2
VC1-2
C6
For [E1, EG] areas ----- 18P
For [E, EB, EF] areas ----- 15P
D1 MA165TA
T1
C10 0.01
R6 820K
R7 330
C11 0.01
R8 220
S1-8
R13 47
R32 100
S1-2
VC1-3
C12 47P
CT3
L3-1
L3-2
CT1-4
C17 10P
S1-3
S1-4
S1-5
S1-6
S1-7
C22 220P
CT6
C23 150P
L6
R12 47
C26 360P
L7
C25 22P
CT1-3
VC1-4
C18 0.022
C37 0.022
C42 0.022
C45 16V10
C43 330P
C46 50V1
AM OSC
AM MIX
FM/AM IF AMP
FM DET
MUTE
LEVEL
AF AMP
AGC
LED
AF SW
AM DET
AF AMP
C31 50V2.2
C35 0.022
C38 0.01
C41 0.022
For [EF] area
R17 2.2K
For [E, EB, EG, EI] areas.
C40
For [EF] area --- 0.01
For [E, EB, EG, EI] areas -- 0.022
T2
T3
R16 3.9K
CF2
C30 0.022
C36 6.3V220
D2 MA165TA
R30 47
R21 4.7K
R20 47
IC3
RV1BA1332L
FM MPX
C47 0.015
C52 6.3V220
D3 MA165TA
STEREO
1/2 (19kHz)
1/2 (38kHz)
VCO (76kHz)
DC
PHASE DETECTOR
AF
HF
STEREO SWITCH
1/2 (19kHz)
DETECTOR
PHASE DETECTOR
TRIGGER
L ch
C49 50V0.47
C48 50V0.47
C50 50V1
R28 1K
R24 100K
R22 560
R23 820
TP6
TP7
C51 0.001
R25 8.2K
VR1 10K(B)
ST/III
ST/II
M/I
S2
CS1
LED
GND
R ch OUT
L ch OUT
B.P(1)
+B
B.P(2)
To MAIN CIRCUIT (CS1)
R26 5.6K
C54 0.015
R27 5.6K
C55 0.015

Notes: (for Tuner Section)

1. S1-1~S1-8 : Band select switch in "FM" position. (F...FM, L...LW, M...MW)
2. S2 : FM mode select/Beat proof switch in "STEREO/II" position. (M/I...MONO/I, ST/II...STEREO/II, ST/III...STEREO/III)
3. VR1 : FM VCO adjustment VR.
4. DC voltage measurements are taken with electronics voltmeter from negative terminal of battery. < >...FM, ( )...AM (MW, LW)
5. The supply parts number is described alone in the replacement parts list.
6. The mark (■) shows test point. e.g. **TP1** = test point 1.

- **This schematic diagram may be modified at any time with the development of new technology.**

➡ : + Ⓑ Voltage Line

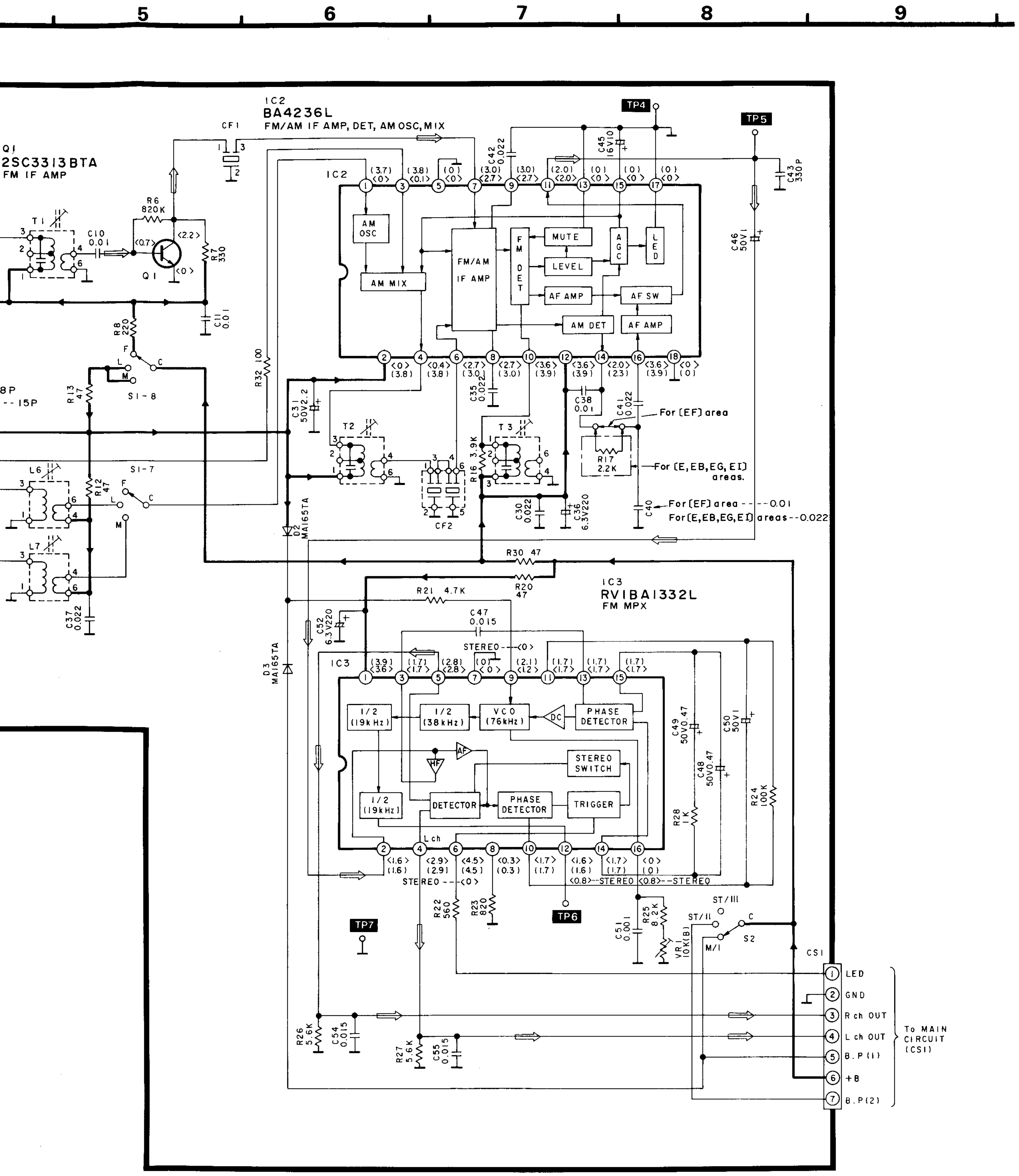
⇨ : Radio (FM) Signal Line

Notes: (for Ma

1. S101-1~S
2. S102
3. S103
4. S149
5. S151-1~S
6. S201-1~S
7. S202
8. S203
9. S204
10. S205
11. S301
12. VR101
13. VR102
14. VR147, 24
15. VR148, 24
16. VR149, 24
17. VR301-1,
18. VR302-1,
19. VR303-1,
20. Battery c
21. The supp
22. The mark
23. Importan
Compone
When rep

- **This sche**

■ INTER

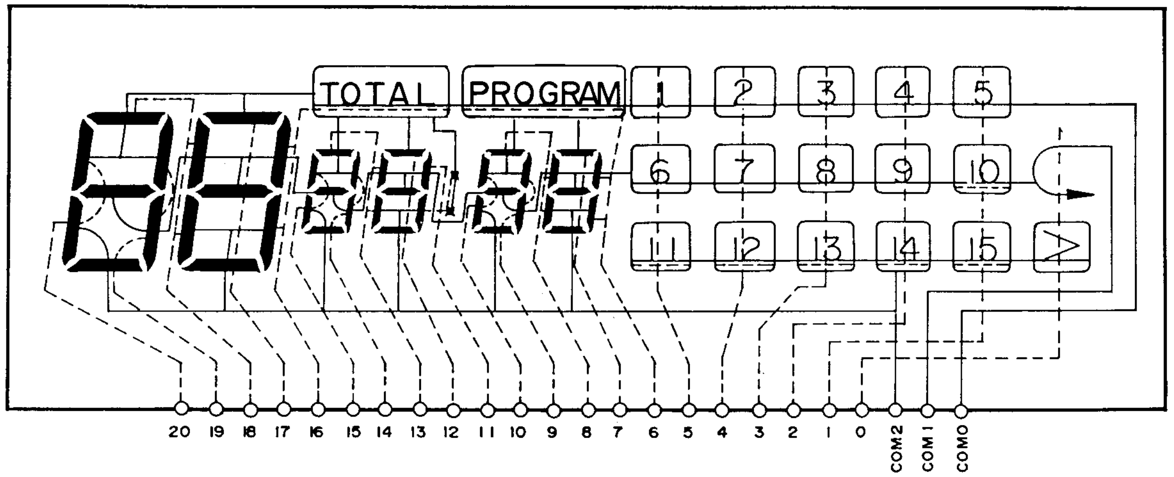

5
6
7
8
9
IC2
BA4236L
FM/AM IF AMP, DET, AM OSC, MIX
CF1
TP4
TP5
Q1
2SC3313BTA
FM IF AMP
R6 820K
C10 0.01
R7 330
C11 0.01
R8 220
T1
S1-8
S1-7
R13 47
R12 47
L6
L7
C37 0.022
8P
15P
AM OSC
AM MIX
FM/AM IF AMP
FM DET
MUTE
LEVEL
AF AMP
AGC
LED
AF SW
AM DET
AF AMP
C42 0.022
C45 16V10
C43 330P
C46 50V1
R32 100
C31 50V2.2
T2
T3
CF2
R16 3.9K
C35 0.022
C38 0.01
C41 0.022
For [EF] area
R17 2.2K
For [E, EB, EG, EI] areas.
C30 0.022
C36 6.3V220
C40
For [EF] area --- 0.01
For [E, EB, EG, EI] areas --- 0.022
D2 MA165TA
R30 47
R20 47
R21 4.7K
C47 0.015
IC3
RVIBA1332L
FM MPX
C52 6.3V220
D3 MA165TA
STEREO
1/2 (19kHz)
1/2 (38kHz)
VCO (76kHz)
DC
PHASE DETECTOR
STEREO SWITCH
1/2 (19kHz)
DETECTOR
PHASE DETECTOR
TRIGGER
L ch
C49 50V0.47
C50 50V1
C48 50V0.47
R28 1K
R24 100K
TP7
TP6
R22 560
R23 820
R25 8.2K
C51 0.001
VR1 10K(B)
ST/III
ST/II
M/I
S2
CS1
LED
GND
R ch OUT
L ch OUT
B.P(1)
+B
B.P(2)
To MAIN CIRCUIT (CS1)
R26 5.6K
C54 0.015
R27 5.6K
C55 0.015

Notes: (for Main and Mechanism Control Section)

1. S101-1～S101-6 : Function select switch in "TAPE/POWER OFF" position. (T...TAPE/POWER OFF, R...RADIO, CD...CD)
2. S102 : Tape select switch in "NORMAL TAPE" position. (NO...NORMAL TAPE, CR...CrO_2 TAPE)
3. S103 : Edit speed select switch in "HIGH SPEED" position. (N...NORMAL SPEED, H...HIGH SPEED)
4. S149 : Dolby NR switch "OFF" position.
5. S151-1～S151-8 : Record/playback changing switch in "PLAYBACK" position. (P...PLAYBACK, R...RECORD)
6. S201-1～S201-3 : Forward/reverse changing switch in "FORWARD" position. (F...FORWARD, R...REVERSE)
7. S202 : FF/REW switch in "OFF" position.
8. S203 : PLAY switch in "OFF" position. } DECK 1
9. S204 : Motor switch in "OFF" position.
10. S205 : Motor switch in "OFF" position. .... DECK 2
11. S301 : AC/DC IN changing switch in "AC IN" position. (D...DC IN, A...AC IN)
12. VR101 : Bias current adjustment VR.
13. VR102 : Tape speed adjustment VR.
14. VR147, 247 : Record/playback level adjustment VR.
15. VR148, 248 : Playback level adjustment VR. .... DECK 1
16. VR149, 249 : Playback level adjustment VR. .... DECK 2
17. VR301-1, VR301-2 : XBS level control.
18. VR302-1, VR302-2 : Tone control.
19. VR303-1, VR303-2 : Volume control.
20. Battery current: No signal .... 130mA (VR MIN)
    Maximum output (VR MAX)
    Radio 1070mA
    Tape (PLAY) 1280mA
    Tape (CD REC) 1800mA
    CD Play 1680mA
21. The supply parts number is described alone in the replacement parts list.
22. The mark (■) shows test point. e.g. **TP1** = test point 1.
23. Important safety notice
    Components identified by △ mark have special characteristics important for safety.
    When replacing any of these components, use only manufacturer's specified parts.

- **This schematic diagram may be modified at any time with the development of new technology.**

■ INTERNAL CONNECTIONS OF LCD (Liquid Crystal Display)


TOTAL
PROGRAM
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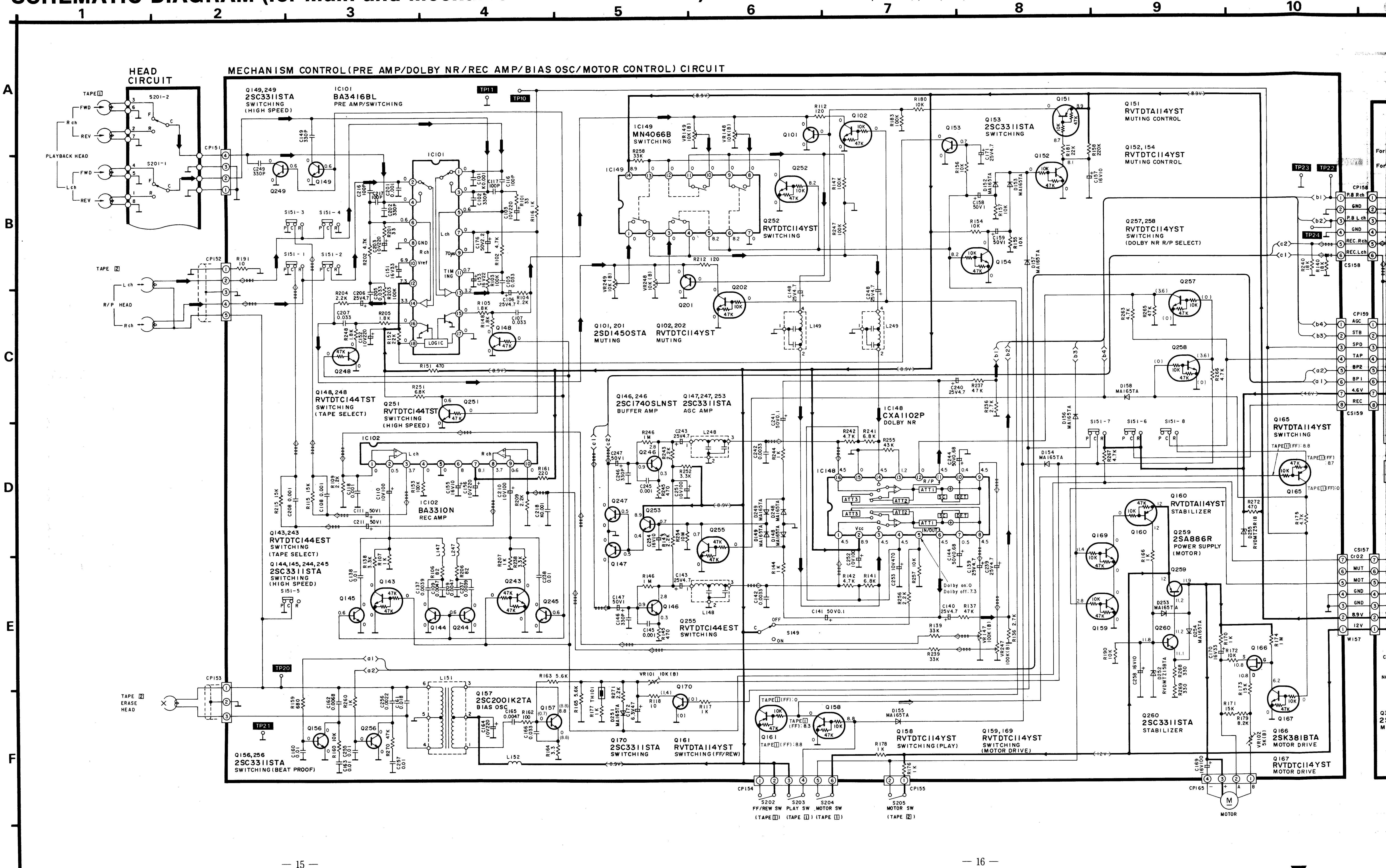
15
20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 0
COM2
COM1
COM0

SCHEMATIC DIAGRAM (for Main and Mechanism Control Section)

Note:
DC voltage measurements are taken with electronics voltmeter from negative terminal of battery.
No mark...Tape PLAY, ( )...Tape REC, < >...CD PLAY, CD...CD STOP

: Ta
: Ma
: Ra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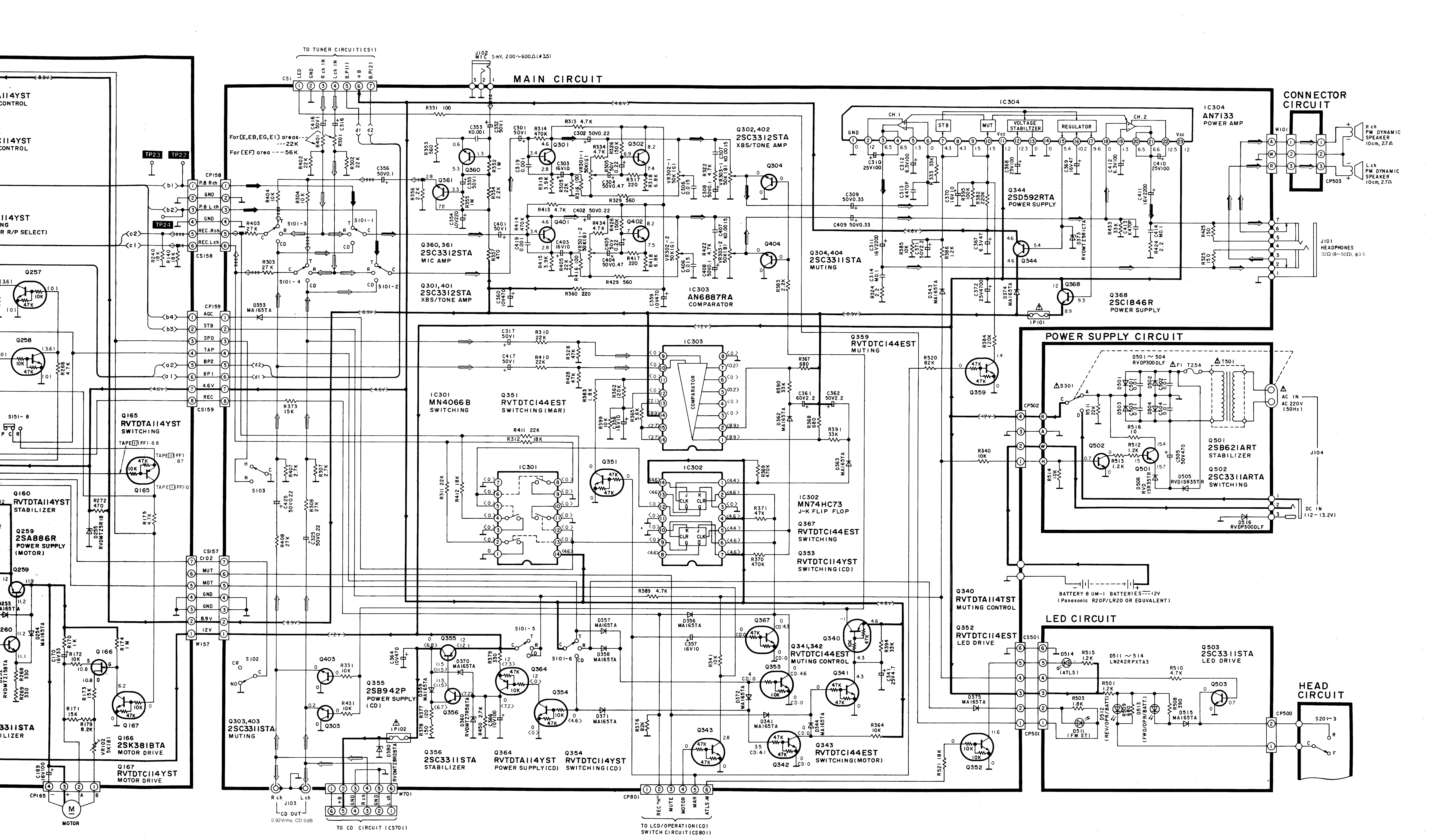
A
B
C
D
E
F
HEAD CIRCUIT
MECHANISM CONTROL (PRE AMP/DOLBY NR/REC AMP/BIAS OSC/MOTOR CONTROL) CIRCUIT
TAPE 1
FWD
REV
R ch
L ch
PLAYBACK HEAD
S201-2
S201-1
CP151
TAPE 2
R/P HEAD
CP152
TAPE 2 ERASE HEAD
CP153
Q149, 249
2SC3311STA
SWITCHING (HIGH SPEED)
IC101
BA3416BL
PRE AMP/SWITCHING
TP11
TP10
TP20
TP21
TP22
TP23
TP24
Q148, 248
RVTDTC144TST
SWITCHING (TAPE SELECT)
Q251
RVTDTC144TST
SWITCHING (HIGH SPEED)
IC102
BA3310N
REC AMP
Q143, 243
RVTDTC144EST
SWITCHING (TAPE SELECT)
Q144, 145, 244, 245
2SC3311STA
SWITCHING (HIGH SPEED)
S151-5
IC149
MN4066B
SWITCHING
Q101, 201
2SD1450STA
MUTING
Q102, 202
RVTDTC114YST
MUTING
Q252
RVTDTC114YST
SWITCHING
Q146, 246
2SC1740SLNST
BUFFER AMP
Q147, 247, 253
2SC3311STA
AGC AMP
Q255
RVTDTC144EST
SWITCHING
IC148
CXA1102P
DOLBY NR
Dolby on: 0
Dolby off: 7.3
S149
OFF
ON
Q151
RVTDTA114YST
MUTING CONTROL
Q152, 154
RVTDTC114YST
MUTING CONTROL
Q153
2SC3311STA
SWITCHING
Q257, 258
RVTDTC114YST
SWITCHING
(DOLBY NR R/P SELECT)
Q165
RVTDTA114YST
SWITCHING
Q160
RVTDTA114YST
STABILIZER
Q259
2SA886R
POWER SUPPLY (MOTOR)
Q260
2SC3311STA
STABILIZER
Q166
2SK381BTA
MOTOR DRIVE
Q167
RVTDTC114YST
MOTOR DRIVE
Q159, 169
RVTDTC114YST
SWITCHING (MOTOR DRIVE)
Q158
RVTDTC114YST
SWITCHING (PLAY)
Q161
RVTDTA114YST
SWITCHING (FF/REW)
Q170
2SC3311STA
SWITCHING
Q157
2SC2001K2TA
BIAS OSC
Q156, 256
2SC3311STA
SWITCHING (BEAT PROOF)
L151
L152
VR101 10K (B)
CP154
CP155
CP156
CP157
CP158
CP159
CP165
S202 FF/REW SW (TAPE 1)
S203 PLAY SW (TAPE 1)
S204 MOTOR SW (TAPE 1)
S205 MOTOR SW (TAPE 2)
MOTOR
M
P.B Rch
GND
P.B Lch
REC.Rch
REC.Lch
AGC
STB
SPD
TAP
BP2
BP1
4.6V
REC
MUT
MOT
8.9V
12V
W157
(8.9V)
(12V)

ative terminal of battery.
OP

➡ : Tape (Play) Signal Line, ▯▯▯▷ : Tape (REC) Signal Line,
⇨ : Main (Tape/CD/Radio) Signal Line, ▨▷ : CD Signal Line,
⇨ : Radio Signal Line, —< >— : ⊕B Voltage Line



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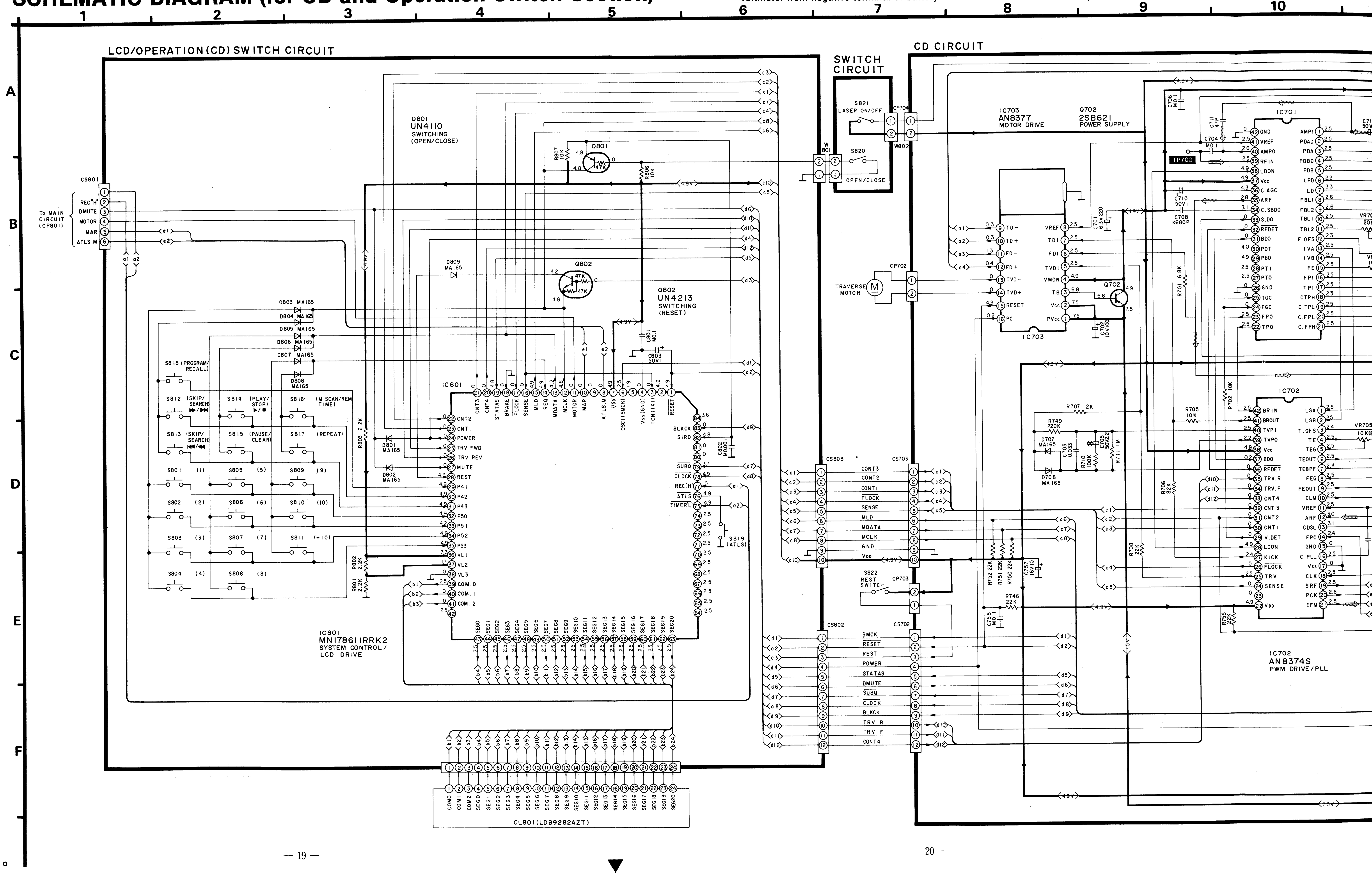
MAIN CIRCUIT
TO TUNER CIRCUIT (CS1)
J102 MIC 5mV, 200~600Ω(#35)
CONNECTOR CIRCUIT
IC304 AN7133 POWER AMP
Q302,402 2SC3312STA XBS/TONE AMP
Q360,361 2SC3312STA MIC AMP
Q301,401 2SC3312STA XBS/TONE AMP
IC303 AN6887RA COMPARATOR
Q304,404 2SC3311STA MUTING
Q344 2SD592RTA POWER SUPPLY
Q368 2SC1846R POWER SUPPLY
Rch PM DYNAMIC SPEAKER 10cm, 2.7Ω
Lch PM DYNAMIC SPEAKER 10cm, 2.7Ω
J101 HEADPHONES 32Ω (8~50Ω), φ3.5
Q359 RVTDTC144EST MUTING
POWER SUPPLY CIRCUIT
AC IN AC 220V (50Hz)
Q501 2SB621ART STABILIZER
Q502 2SC3311ARTA SWITCHING
DC IN (12 - 13.2V)
IC301 MN4066B SWITCHING
Q351 RVTDTC144EST SWITCHING (MAR)
IC302 MN74HC73 J-K FLIP FLOP
Q367 RVTDTC144EST SWITCHING
Q353 RVTDTC114YST SWITCHING (CD)
BATTERY 8 UM-1 BATTERIES ⎓ 12V (Panasonic R20P/LR20 OR EQUVALENT)
Q340 RVTDTA114TST MUTING CONTROL
Q352 RVTDTC114EST LED DRIVE
LED CIRCUIT
D511 ~ 514 LN242RPXTA3
Q503 2SC3311STA LED DRIVE
HEAD CIRCUIT
Q341,342 RVTDTC144EST MUTING CONTROL
Q343 RVTDTC144EST SWITCHING (MOTOR)
Q355 2SB942P POWER SUPPLY (CD)
Q356 2SC3311STA STABILIZER
Q364 RVTDTA114YST POWER SUPPLY (CD)
Q354 RVTDTC114YST SWITCHING (CD)
Q303,403 2SC3311STA MUTING
J103 CD OUT 0.92Vrms, CD 0dB
TO CD CIRCUIT (CS701)
TO LCD/OPERATION (CD) SWITCH CIRCUIT (CS801)
Q165 RVTDTA114YST SWITCHING
Q160 RVTDTA114YST STABILIZER
Q259 2SA886R POWER SUPPLY (MOTOR)
Q166 2SK381BTA MOTOR DRIVE
Q167 RVTDTC114YST MOTOR DRIVE
MOTOR

SCHEMATIC DIAGRAM (for CD and Operation Switch Section)

Note:
DC voltage measurements are taken with electronics voltmeter from negative terminal of battery.

No mark...CD PLAY (1kHz)
⇨ : CD Signal Line,
—< >— : ⊕B Voltage Line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A
B
C
D
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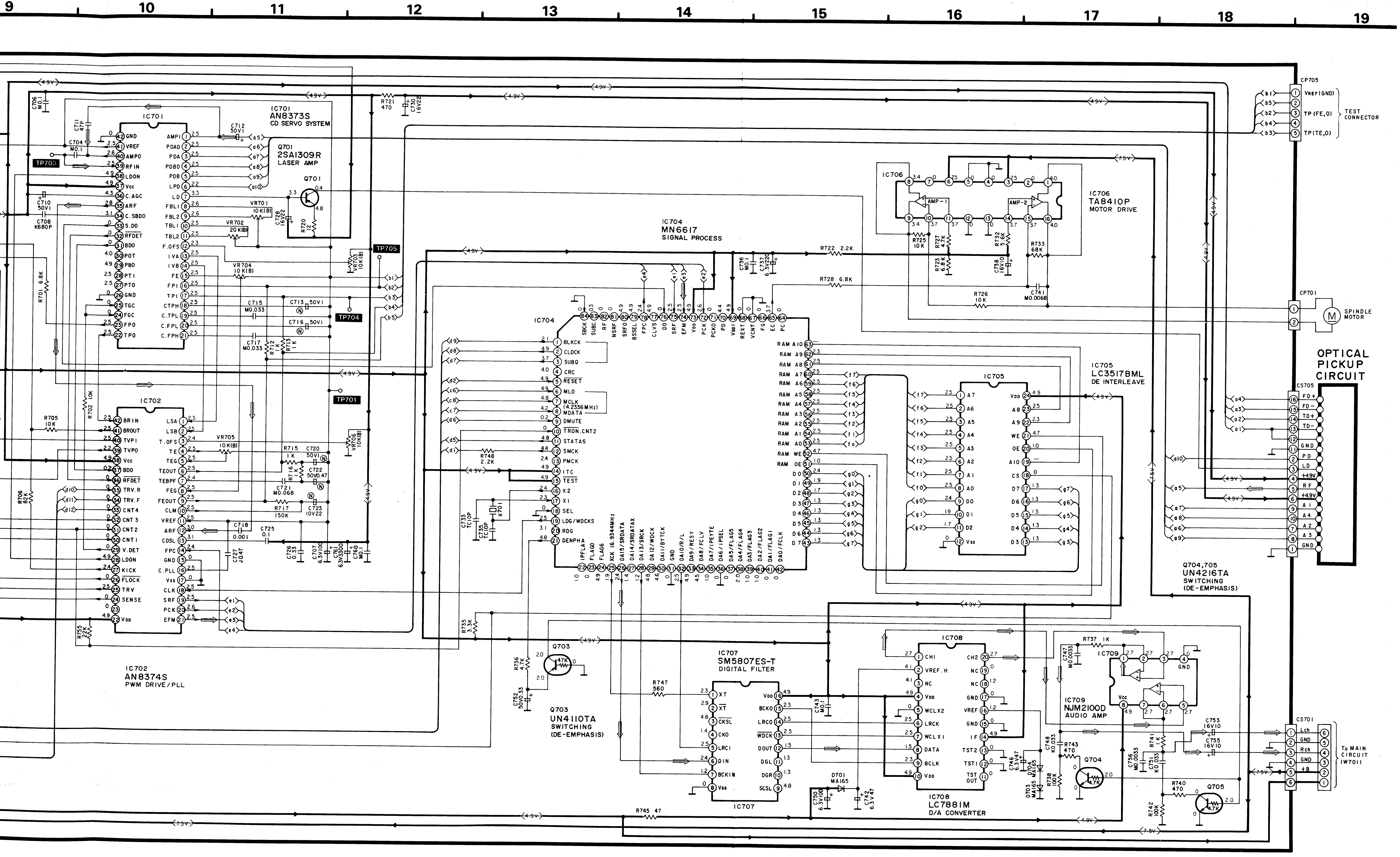
F
LCD/OPERATION(CD) SWITCH CIRCUIT
SWITCH CIRCUIT
CD CIRCUIT
CS801
To MAIN CIRCUIT (CP801)
REC"H"
DMUTE
MOTOR
MAR
ATLS.M
Q801 UN4110 SWITCHING (OPEN/CLOSE)
Q802 UN4213 SWITCHING (RESET)
R807 10K
R806 10K
R803 2.2K
R802 2.2K
R801 2.2K
C801 M0.1
C803 50V1
C802 M0.001
D801 MA165
D802 MA165
D803 MA165
D804 MA165
D805 MA165
D806 MA165
D807 MA165
D808 MA165
D809 MA165
S818 (PROGRAM/RECALL)
S812 (SKIP/SEARCH)
S814 (PLAY/STOP)
S816 (M.SCAN/REM TIME)
S813 (SKIP/SEARCH)
S815 (PAUSE/CLEAR)
S817 (REPEAT)
S801 (1)
S805 (5)
S809 (9)
S802 (2)
S806 (6)
S810 (10)
S803 (3)
S807 (7)
S811 (+10)
S804 (4)
S808 (8)
S819 (ATLS)
IC801
IC801 MN178611RRK2 SYSTEM CONTROL/LCD DRIVE
CL801(LDB9282AZT)
S821 LASER ON/OFF
S820 OPEN/CLOSE
W801
W802
CP704
CP702
TRAVERSE MOTOR
IC703 AN8377 MOTOR DRIVE
Q702 2SB621 POWER SUPPLY
IC701
IC702
IC702 AN8374S PWM DRIVE/PLL
TP703
CS803
CS703
CS802
CS702
CP703
S822 REST SWITCH
R701 6.8K
R702 10K
R705 10K
R706 82K
R707 12K
R708 22K
R710 100K
R711 1M
R746 22K
R749 220K
R750 22K
R751 22K
R752 22K
R755 22K
C701 6.3V220
C702 10V100
C703 0.033
C704 M0.1
C705 50V2.2
C706 M0.1
C708 K680P
C710 50V1
C711 47P
C757 16V10
C758 M0.1
D707 MA165
D708 MA165
VR705 10KB

AY (1kHz)
gnal Line,
—< >— : ⊕B Voltage Line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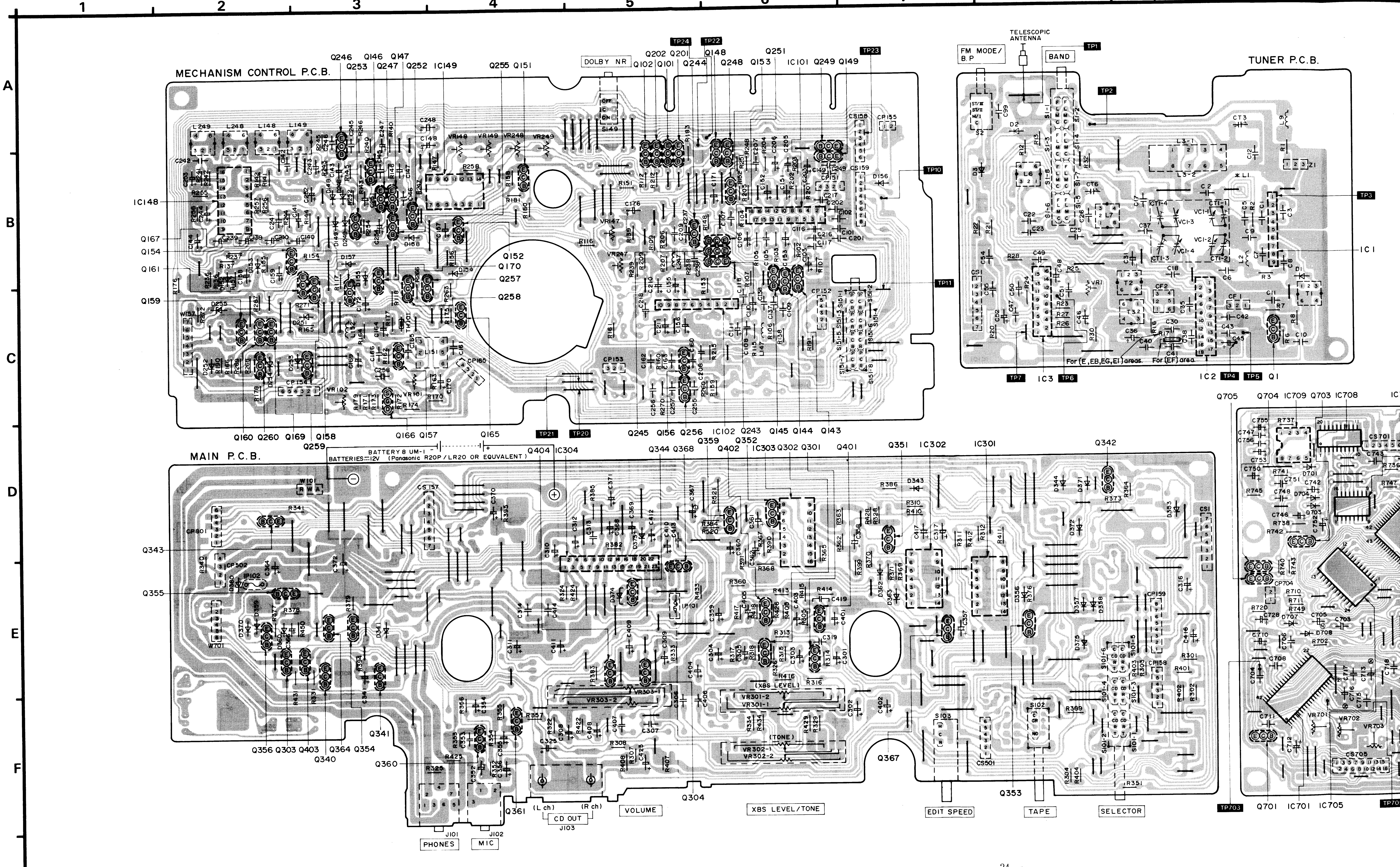
IC701 AN8373S CD SERVO SYSTEM
Q701 2SA1309R LASER AMP
IC702 AN8374S PWM DRIVE/PLL
IC704 MN6617 SIGNAL PROCESS
IC705 LC3517BML DE INTERLEAVE
IC706 TA8410P MOTOR DRIVE
AMP-1
AMP-2
IC707 SM5807ES-T DIGITAL FILTER
IC708 LC7881M D/A CONVERTER
IC709 NJM2100D AUDIO AMP
Q703 UN4110TA SWITCHING (DE-EMPHASIS)
Q704,705 UN4216TA SWITCHING (DE-EMPHASIS)
CP705 TEST CONNECTOR
VREF(GND)
TP(FE,0)
TP(TE,0)
CP701 SPINDLE MOTOR
OPTICAL PICKUP CIRCUIT
CS705
CS701 To MAIN CIRCUIT (W701)
TP703
TP705
TP704
TP701
X701 16.9344MHz
MCLK (4.2336MHz)
4.9V
7.5V

CIRCUIT BOARDS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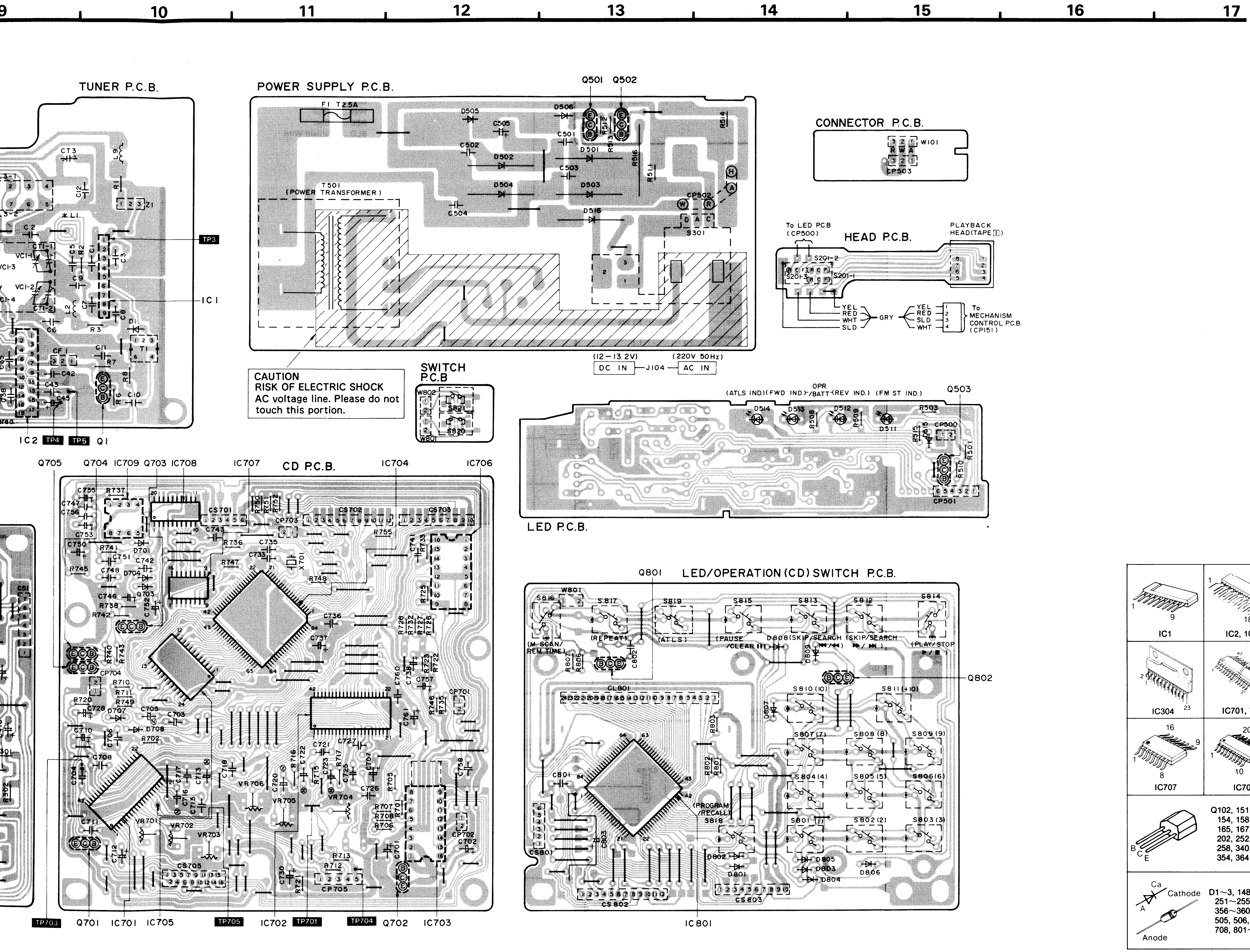
A
B
C
D
E
F
MECHANISM CONTROL P.C.B.
TUNER P.C.B.
MAIN P.C.B.
DOLBY NR
OFF
ON
S149
TELESCOPIC ANTENNA
FM MODE/B.P
BAND
TP1
TP2
TP3
TP4
TP5
TP6
TP7
TP10
TP11
TP20
TP21
TP22
TP23
TP24
TP703
IC148
IC149
IC101
IC102
IC1
IC2
IC3
IC301
IC302
IC303
IC304
IC701
IC705
IC708
IC709
Q246 Q146 Q147
Q253 Q247 Q252
Q255 Q151
Q202 Q201 Q148
Q102 Q101 Q244 Q248 Q153 Q251 Q249 Q149
Q167
Q154
Q161
Q159
Q152
Q170
Q257
Q258
Q160 Q260 Q169 Q158
Q259
Q166 Q157
Q165
Q245 Q156 Q256 IC102 Q243 Q145 Q144 Q143
Q1
Q705 Q704 IC709 Q703 IC708
Q701 IC701 IC705
BATTERY 8 UM-1
BATTERIES ═ 12V (Panasonic R20P/LR20 OR EQUIVALENT)
Q404 IC304
Q344 Q368
Q359 Q402 Q352 IC303 Q302 Q301
Q401 Q351 IC302 IC301 Q342
Q343
Q355
Q356 Q303 Q403 Q364 Q354
Q340
Q341
Q360
Q361
Q304
Q367
Q353
For (E, EB, EG, EI) areas.
For (EF) area.
(XBS LEVEL)
(TONE)
PHONES
J101
MIC
J102
(L ch)
(R ch)
CD OUT
J103
VOLUME
XBS LEVEL/TONE
EDIT SPEED
TAPE
SELECTOR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16
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TUNER P.C.B.
TP3
IC1
IC2
TP4
TP5
Q1
POWER SUPPLY P.C.B.
F1 T2.5A
Q501 Q502
T501 (POWER TRANSFORMER)
S301
CP502
CAUTION
RISK OF ELECTRIC SHOCK
AC voltage line. Please do not touch this portion.
(12 – 13.2V) DC IN
J104
(220V 50Hz) AC IN
CONNECTOR P.C.B.
W101
CP503
HEAD P.C.B.
To LED P.C.B (CP500)
PLAYBACK HEAD (TAPE Ⅱ)
S201-2
S201-1
YEL
RED
WHT
SLD
GRY
To MECHANISM CONTROL P.C.B. (CP151)
SWITCH P.C.B
W802
S82
S820
W801
(ATLS IND.)
(FWD IND.)
OPR/BATT
(REV IND.)
(FM ST IND.)
Q503
D514
D513
D512
D511
CP500
CP501
LED P.C.B.
Q705
Q704
IC709
Q703
IC708
IC707
CD P.C.B.
IC704
IC706
TP703
Q701
IC701
IC705
TP705
IC702
TP701
TP704
Q702
IC703
VR701
VR702
VR703
VR704
VR705
VR706
Q801
LED/OPERATION (CD) SWITCH P.C.B.
W801
S816
(M.SCAN/REM.TIME)
S817
(REPEAT)
S819
(ATLS)
S815
(PAUSE/CLEAR)
S813
(SKIP/SEARCH)
S812
(SKIP/SEARCH)
S814
(PLAY/STOP)
Q802
CL801
S810 (10)
S811 (+10)
S807 (7)
S808 (8)
S809 (9)
S804 (4)
S805 (5)
S806 (6)
S801 (1)
S802 (2)
S803 (3)
(PROGRAM/RECALL) S818
CS801
CS802
CS803
IC801

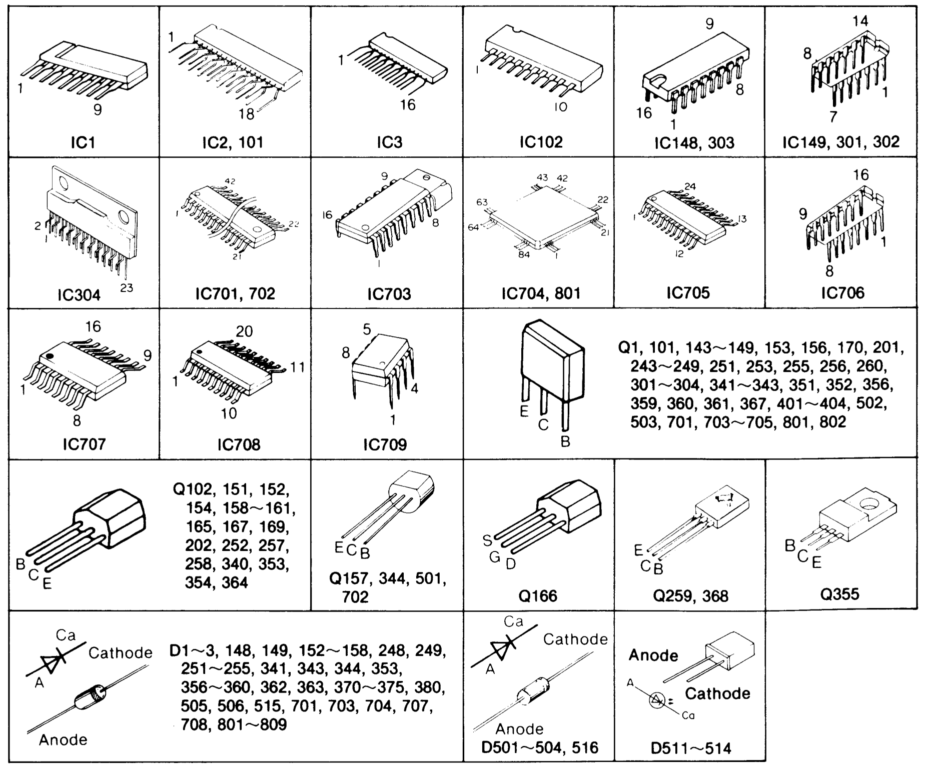
Notes: (for CD and LCD/Operation Switch Section)

1. S801 : Key 1 switch.
2. S802 : Key 2 switch.
3. S803 : Key 3 switch.
4. S804 : Key 4 switch.
5. S805 : Key 5 switch.
6. S806 : Key 6 switch.
7. S807 : Key 7 switch.
8. S808 : Key 8 switch.
9. S809 : Key 9 switch.
10. S810 : Key 10 switch.
11. S811 : Key +10 switch.

(1–11) NUMERIC SWITCH

12. S812 : Skip/search (FWD ▶▶/▶▶|) switch.
13. S813 : Skip/search (REV ◀◀/|◀◀) switch.
14. S814 : Play/stop switch.
15. S815 : Pause/clear switch.
16. S816 : Music scan/Remaining switch.
17. S817 : Repeat switch.
18. S818 : Programme/recall switch.
19. S819 : ATLS (Automatic Tape Level Setting) switch.
20. S820 : Close (CD cover close detection) switch.
21. S821 : Laser ON/OFF switch.
22. S822 : Rest switch.
23. VR701 : Best eye adjustment VR.
24. VR702 : Tracking balance adjustment VR.
25. VR703 : Focus offset adjustment VR.
26. VR704 : Focus gain adjustment VR.
27. VR705 : Tracking gain adjustment VR.
28. VR706 : Tracking offset adjustment VR.
29. The supply parts number is described alone in the replacement parts list.
30. The mark (■) shows test point. e.g. **TP1** = test point 1.

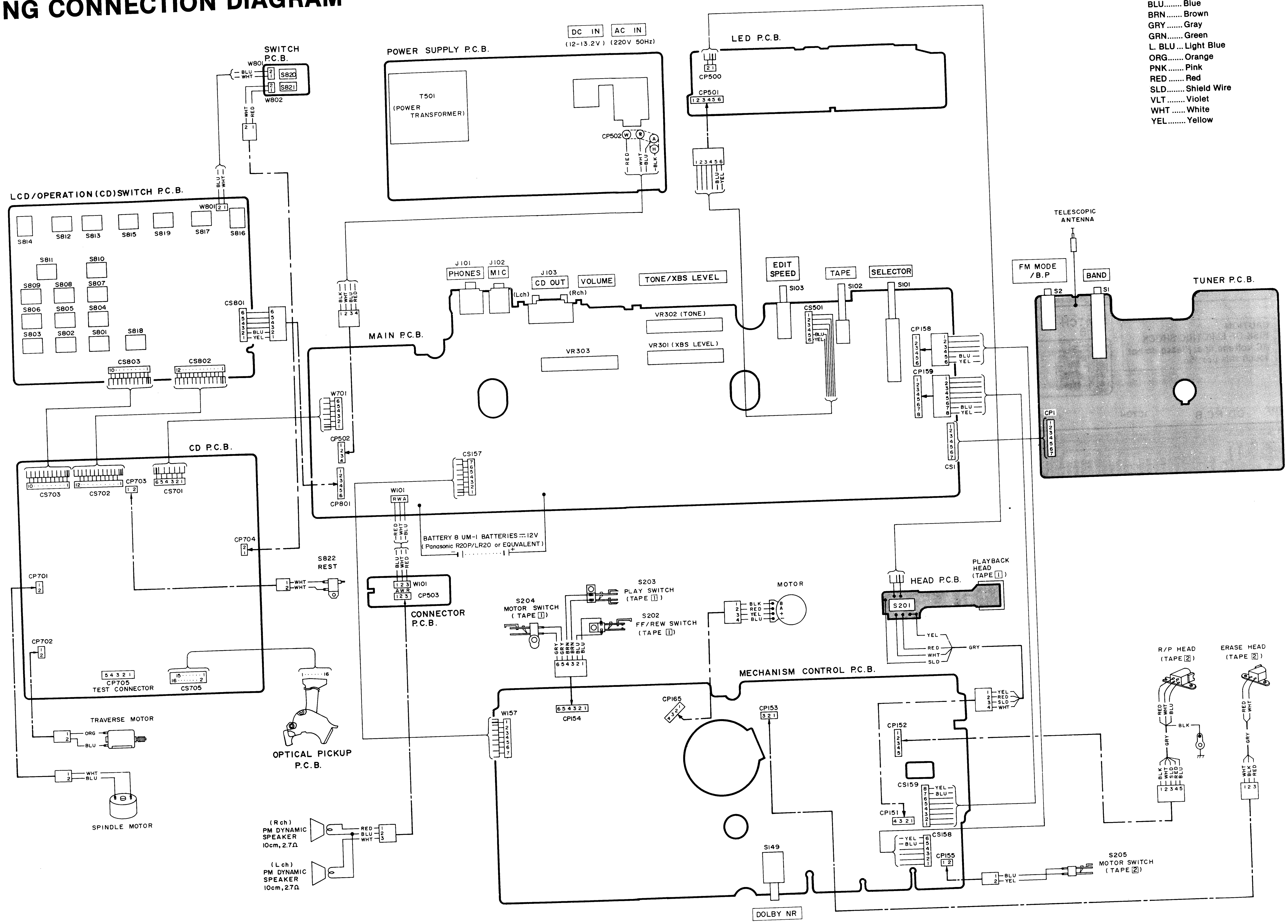
- **This schematic diagram may be modified at any time with the development of new technology.**


IC1
IC2, 101
IC3
IC102
IC148, 303
IC149, 301, 302
IC304
IC701, 702
IC703
IC704, 801
IC705
IC706
IC707
IC708
IC709
Q1, 101, 143～149, 153, 156, 170, 201, 243～249, 251, 253, 255, 256, 260, 301～304, 341～343, 351, 352, 356, 359, 360, 361, 367, 401～404, 502, 503, 701, 703～705, 801, 802
E C B
Q102, 151, 152, 154, 158～161, 165, 167, 169, 202, 252, 257, 258, 340, 353, 354, 364
B C E
Q157, 344, 501, 702
E C B
Q166
S G D
Q259, 368
E C B
Q355
B C E
Ca Cathode
A Anode
D1～3, 148, 149, 152～158, 248, 249, 251～255, 341, 343, 344, 353, 356～360, 362, 363, 370～375, 380, 505, 506, 515, 701, 703, 704, 707, 708, 801～809
Ca Cathode
A Anode
D501～504, 516
Anode
Cathode
D511～514

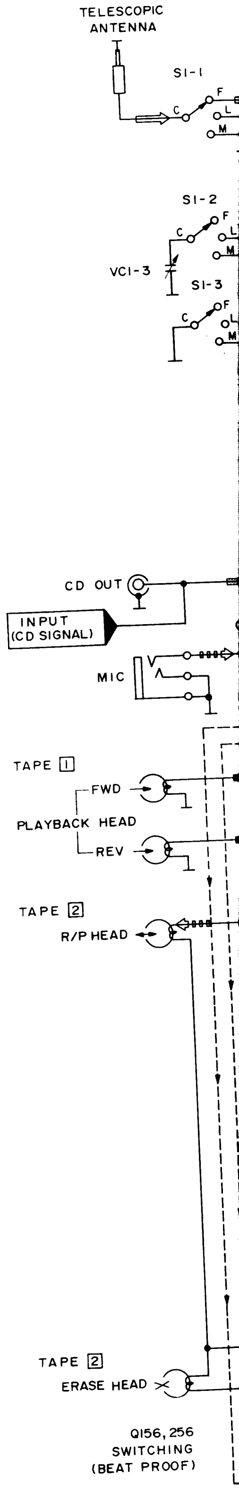
WIRING CONNECTION DIAGRAM

NOTES:

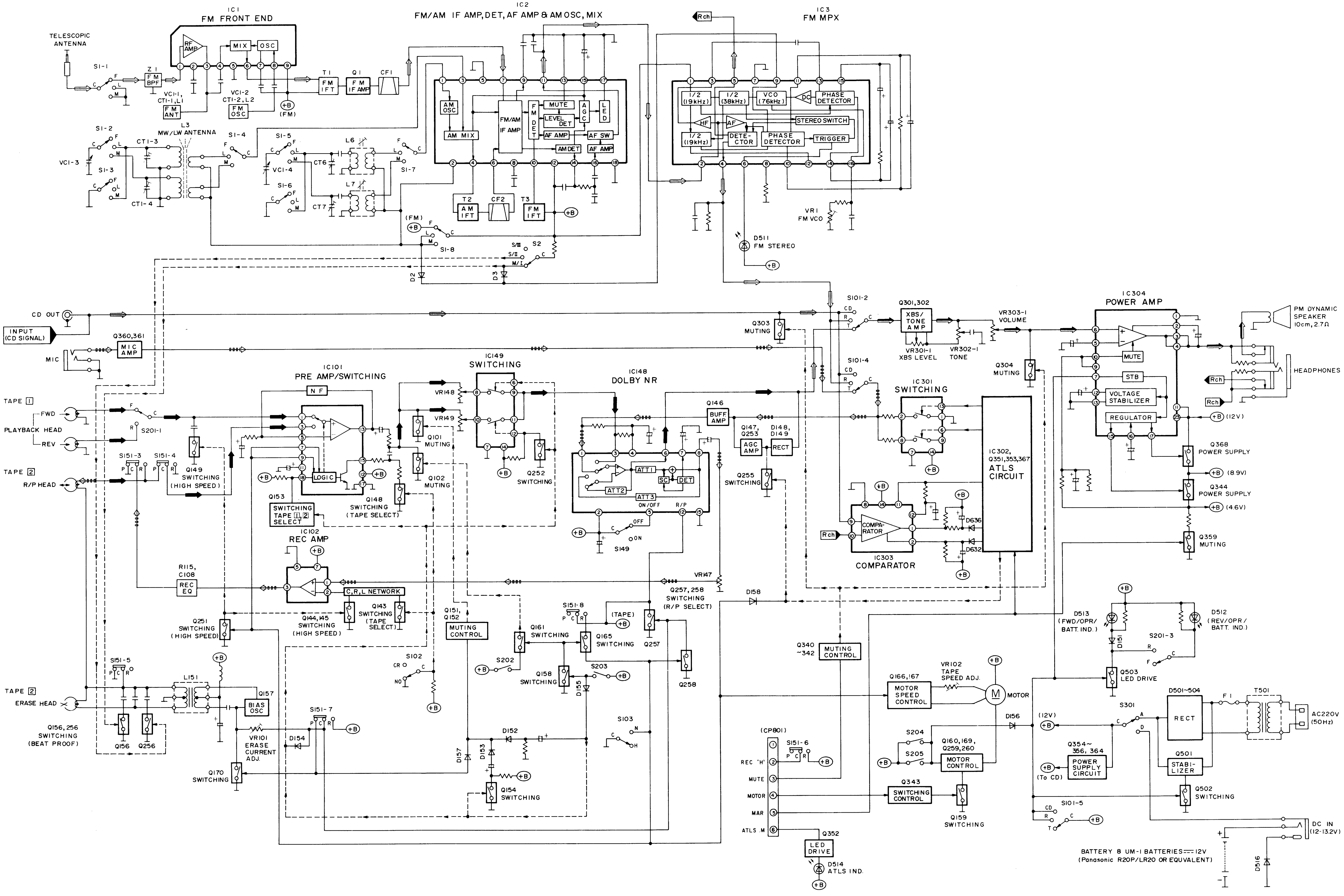
BLK........ Black
BLU........ Blue
BRN....... Brown
GRY....... Gray
GRN....... Green
L. BLU ... Light Blue
ORG....... Orange
PNK....... Pink
RED....... Red
SLD....... Shield Wire
VLT........ Violet
WHT...... White
YEL........ Yellow


SWITCH P.C.B.
W801
W802
S820
S821
POWER SUPPLY P.C.B.
T501 (POWER TRANSFORMER)
DC IN (12-13.2V)
AC IN (220V 50Hz)
CP502
LED P.C.B.
CP500
CP501
LCD/OPERATION (CD) SWITCH P.C.B.
S814
S812
S813
S815
S819
S817
S816
S811
S810
S809
S808
S807
S806
S805
S804
S803
S802
S801
S818
CS801
CS803
CS802
J101 PHONES
J102 MIC
J103 CD OUT
(Lch)
(Rch)
VOLUME
TONE/XBS LEVEL
VR302 (TONE)
VR301 (XBS LEVEL)
VR303
EDIT SPEED
S103
TAPE
S102
SELECTOR
S101
CS501
MAIN P.C.B.
W701
CP502
CP801
CS157
CP158
CP159
CS1
W101
TELESCOPIC ANTENNA
FM MODE /B.P
BAND
S2
S1
TUNER P.C.B.
CP1
CD P.C.B.
CS703
CS702
CP703
CS701
CP704
CP701
CP702
CP705 TEST CONNECTOR
CS705
S822 REST
BATTERY 8 UM-1 BATTERIES ⎓ 12V (Panasonic R20P/LR20 or EQUIVALENT)
W101
CP503
CONNECTOR P.C.B.
TRAVERSE MOTOR
SPINDLE MOTOR
OPTICAL PICKUP P.C.B.
(Rch) PM DYNAMIC SPEAKER 10cm, 2.7Ω
(Lch) PM DYNAMIC SPEAKER 10cm, 2.7Ω
S204 MOTOR SWITCH (TAPE 1)
S203 PLAY SWITCH (TAPE 1)
S202 FF/REW SWITCH (TAPE 1)
MOTOR
HEAD P.C.B.
S201
PLAYBACK HEAD (TAPE 1)
MECHANISM CONTROL P.C.B.
W157
CP154
CP165
CP153
CP152
CS159
CP151
CS158
CP155
S149
DOLBY NR
R/P HEAD (TAPE 2)
ERASE HEAD (TAPE 2)
S205 MOTOR SWITCH (TAPE 2)
BLK
BLU
WHT
RED
YEL
GRY
GRN
BRN
ORG
SLD

BLOCK DIAG

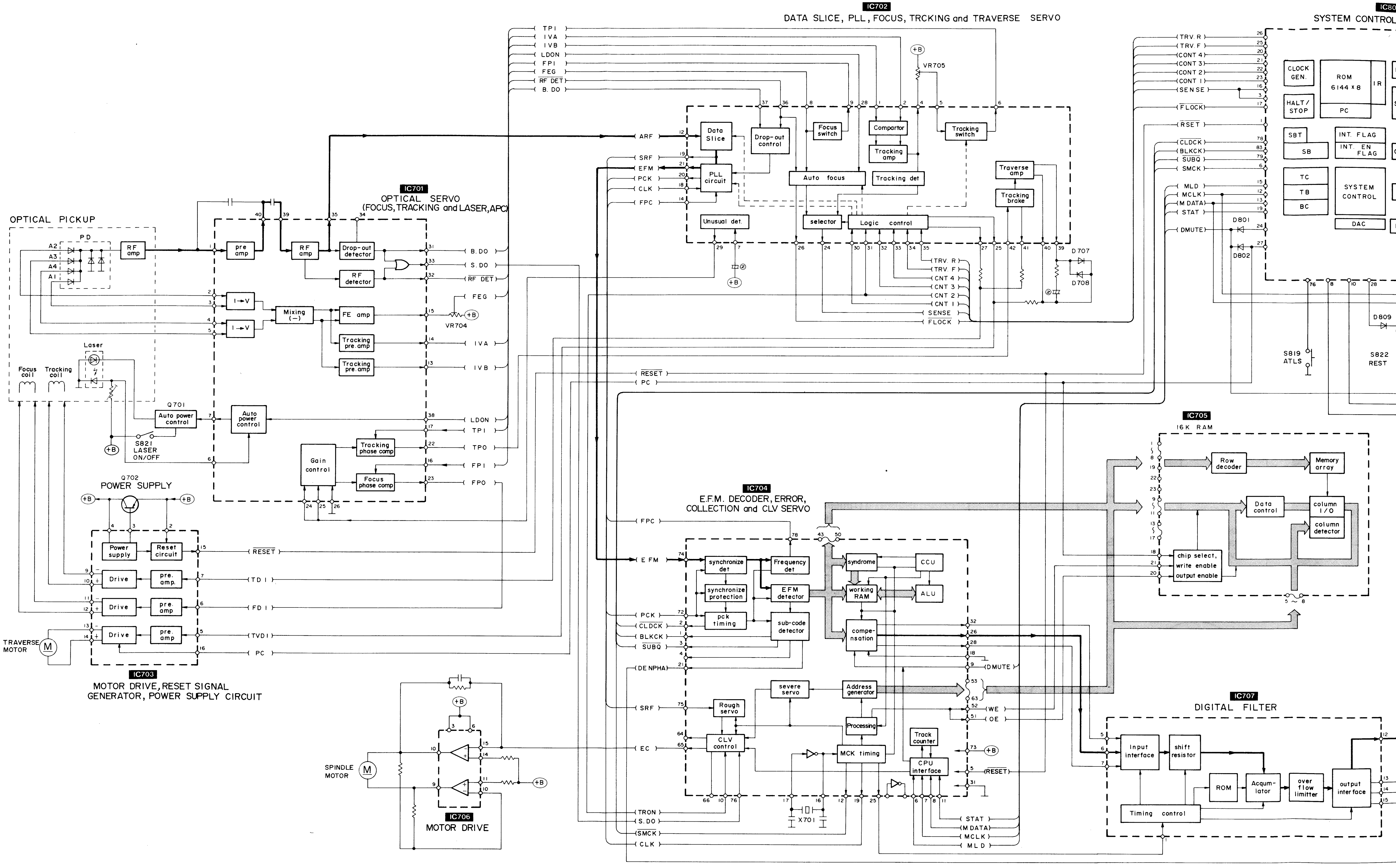

TELESCOPIC ANTENNA
S1-1
S1-2
VC1-3
S1-3
CD OUT
INPUT (CD SIGNAL)
MIC
TAPE 1
FWD
PLAYBACK HEAD
REV
TAPE 2
R/P HEAD
TAPE 2
ERASE HEAD
Q156, 256 SWITCHING (BEAT PROOF)

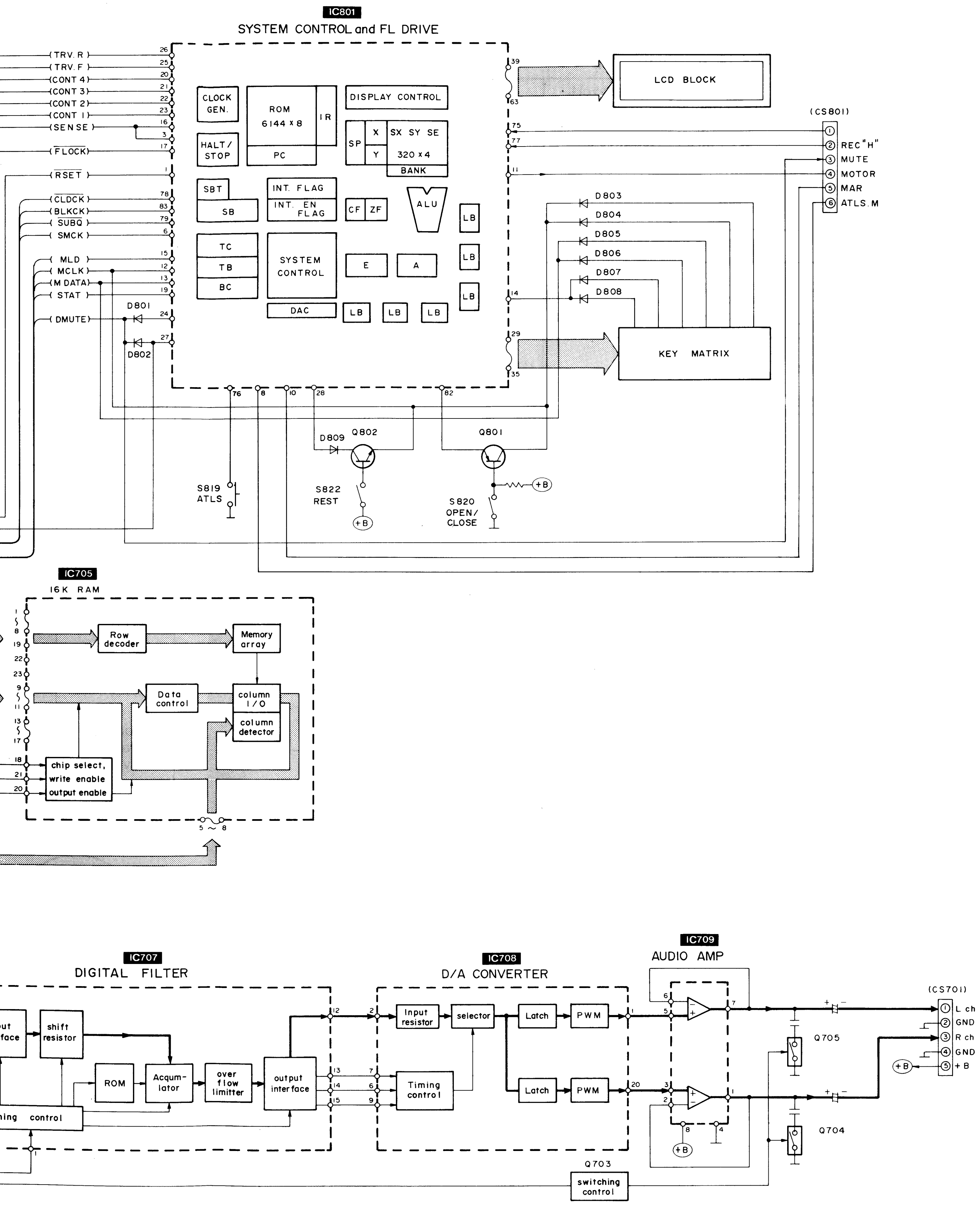
BLOCK DIAGRAM (for Tuner, Main and Mechanism Control Section)



IC1
FM FRONT END
RF AMP
MIX
OSC
TELESCOPIC ANTENNA
S1-1
Z1
FM BPF
VC1-1, CT1-1, L1
FM ANT
VC1-2
CT1-2, L2
FM OSC
(FM)
T1
FM IFT
Q1
FM IF AMP
CF1
IC2
FM/AM IF AMP, DET, AF AMP & AM OSC, MIX
AM OSC
AM MIX
FM/AM IF AMP
FM DET
MUTE
LEVEL DET
AGC
LED
AF AMP
AF SW
AM DET
AF AMP
T2
AM IFT
CF2
T3
FM IFT
S1-2
VC1-3
CT1-3
L3
MW/LW ANTENNA
S1-3
CT1-4
S1-4
S1-5
VC1-4
CT6
L6
S1-6
CT7
L7
S1-7
(FM)
S1-8
S/III
S/II
M/I
S2
D2
D3
Rch
IC3
FM MPX
1/2 (19kHz)
1/2 (38kHz)
VCO (76kHz)
DC
PHASE DETECTOR
HF
AF
STEREO SWITCH
1/2 (19kHz)
DETECTOR
PHASE DETECTOR
TRIGGER
VR1
FM VCO
D511
FM STEREO
CD OUT
INPUT (CD SIGNAL)
Q360,361
MIC AMP
MIC
S101-2
CD
R
T
Q303
MUTING
Q301,302
XBS/TONE AMP
VR301-1
XBS LEVEL
VR302-1
TONE
VR303-1
VOLUME
IC304
POWER AMP
MUTE
STB
VOLTAGE STABILIZER
REGULATOR
PM DYNAMIC SPEAKER
10cm, 2.7Ω
HEADPHONES
Rch
(12V)
Q368
POWER SUPPLY
(8.9V)
Q344
POWER SUPPLY
(4.6V)
Q359
MUTING
Q304
MUTING
S101-4
IC301
SWITCHING
IC302, Q351,353,367
ATLS CIRCUIT
IC303
COMPARATOR
COMPARATOR
D636
D632
TAPE 1
FWD
PLAYBACK HEAD
REV
S201-1
TAPE 2
R/P HEAD
S151-3
S151-4
Q149
SWITCHING (HIGH SPEED)
IC101
PRE AMP/SWITCHING
NF
LOGIC
Q153
SWITCHING TAPE 1, 2 SELECT
Q148
SWITCHING (TAPE SELECT)
IC149
SWITCHING
VR148
VR149
Q101
MUTING
Q102
MUTING
Q252
SWITCHING
IC148
DOLBY NR
ATT1
ATT2
ATT3
SC
DET
ON/OFF
R/P
OFF
ON
S149
Q146
BUFF AMP
Q147, Q253
AGC AMP
D148, D149
RECT
Q255
SWITCHING
IC102
REC AMP
R115, C108
REC EQ
C,R,L NETWORK
VR147
Q251
SWITCHING (HIGH SPEED)
Q144,145
SWITCHING (HIGH SPEED)
Q143
SWITCHING (TAPE SELECT)
Q151, Q152
MUTING CONTROL
S151-8
(TAPE)
Q161
SWITCHING
Q165
SWITCHING
Q257
Q257, 258
SWITCHING (R/P SELECT)
Q258
D158
S202
Q158
SWITCHING
S203
D155
S102
CR
NO
S151-5
L151
TAPE 2
ERASE HEAD
Q157
BIAS OSC
Q156, 256
SWITCHING (BEAT PROOF)
Q156
Q256
S151-7
VR101
ERASE CURRENT ADJ.
D154
Q170
SWITCHING
D157
D153
D152
Q154
SWITCHING
S103
N
H
Q340 ~342
MUTING CONTROL
(CP801)
S151-6
REC "H"
MUTE
MOTOR
MAR
ATLS M
Q352
LED DRIVE
D514
ATLS IND.
Q166,167
MOTOR SPEED CONTROL
VR102
TAPE SPEED ADJ.
MOTOR
S204
S205
Q160,169, Q259,260
MOTOR CONTROL
Q343
SWITCHING CONTROL
Q159
SWITCHING
D156
(12V)
D513
(FWD/OPR/ BATT. IND.)
D151
D512
(REV/OPR/ BATT. IND.)
S201-3
Q503
LED DRIVE
S301
Q354~ 356, 364
POWER SUPPLY CIRCUIT
(To CD)
D501~504
RECT
F1
T501
AC220V (50Hz)
Q501
STABILIZER
Q502
SWITCHING
S101-5
DC IN (12-13.2V)
BATTERY 8 UM-1 BATTERIES ═ 12V
(Panasonic R20P/LR20 OR EQUVALENT)
D516
+B

BLOCK DIAGRAM (for CD and Operation Switch Section)


IC702
DATA SLICE, PLL, FOCUS, TRCKING and TRAVERSE SERVO
IC701
OPTICAL SERVO
(FOCUS,TRACKING and LASER,APC)
OPTICAL PICKUP
PD
RF amp
pre amp
Drop-out detector
RF detector
I→V
Mixing (−)
FE amp
Tracking pre.amp
Auto power control
Tracking phase comp
Focus phase comp
Gain control
Laser
Focus coil
Tracking coil
Q701
S821 LASER ON/OFF
VR704
Q702
POWER SUPPLY
Power supply
Reset circuit
Drive
pre. amp
TRAVERSE MOTOR
IC703
MOTOR DRIVE, RESET SIGNAL GENERATOR, POWER SUPPLY CIRCUIT
SPINDLE MOTOR
IC706
MOTOR DRIVE
TPI
IVA
IVB
LDON
FPI
FEG
RF DET
B. DO
S. DO
TPO
FPO
RESET
TDI
FDI
TVDI
PC
Data Slice
PLL circuit
Drop-out control
Focus switch
Comparator
Tracking amp
Tracking switch
Auto focus
Tracking det
Traverse amp
Tracking brake
Unusual det.
selector
Logic control
VR705
D707
D708
ARF
SRF
EFM
PCK
CLK
FPC
TRV. R
TRV. F
CNT 4
CNT 3
CNT 2
CNT 1
SENSE
FLOCK
IC704
E.F.M. DECODER, ERROR, COLLECTION and CLV SERVO
synchronize det
synchronize protection
pck timing
Frequency det
EFM detector
sub-code detector
syndrome
CCU
working RAM
ALU
compe-nsation
severe servo
Address generator
Processing
Rough servo
CLV control
MCK timing
Track counter
CPU interface
X701
CLDCK
BLKCK
SUBQ
DENPHA
EC
TRON
SMCK
DMUTE
WE
OE
STAT
M DATA
MCLK
MLD
IC705
16K RAM
Row decoder
Memory array
Data control
column I/O
column detector
chip select, write enable output enable
IC707
DIGITAL FILTER
Input interface
shift resistor
ROM
Acqumu-lator
over flow limitter
output interface
Timing control
SYSTEM CONTROL
CLOCK GEN.
ROM 6144×8
IR
HALT/STOP
PC
SBT
SB
INT. FLAG
INT. EN FLAG
TC
TB
BC
SYSTEM CONTROL
DAC
CONT 4
CONT 3
CONT 2
CONT 1
MLD
MCLK
D801
D802
D809
S819 ATLS
S822 REST
+B


IC801
SYSTEM CONTROL and FL DRIVE
TRV. R
TRV. F
CONT 4
CONT 3
CONT 2
CONT 1
SENSE
FLOCK
RSET
CLDCK
BLKCK
SUBQ
SMCK
MLD
MCLK
M DATA
STAT
DMUTE
CLOCK GEN.
ROM 6144 x 8
IR
PC
HALT/STOP
DISPLAY CONTROL
SP
X
Y
SX SY SE
320 x 4
BANK
SBT
SB
INT. FLAG
INT. EN FLAG
CF
ZF
ALU
LB
TC
TB
BC
SYSTEM CONTROL
E
A
DAC
LCD BLOCK
KEY MATRIX
(CS801)
REC "H"
MUTE
MOTOR
MAR
ATLS. M
D801
D802
D803
D804
D805
D806
D807
D808
D809
Q802
Q801
S819 ATLS
S822 REST
S820 OPEN/CLOSE
+B
IC705
16K RAM
Row decoder
Memory array
Data control
column I/O
column detector
chip select, write enable output enable
5 ~ 8
IC707
DIGITAL FILTER
shift resistor
ROM
Acqum-lator
over flow limitter
output interface
control
IC708
D/A CONVERTER
Input resistor
selector
Latch
PWM
Timing control
IC709
AUDIO AMP
Q705
Q704
Q703
switching control
(CS701)
L ch
GND
R ch
GND
+B

Notes: (for Tuner Section)

1. S1-1~S1-8 : Band select switch in "FM" position. (F...FM, L...LW, M...MW)
2. S2 : FM mode select/Beat proof switch in "STEREO/II" position. (M/I...MONO/I, ST/II...STEREO/II, ST/III...STEREO/III)
3. VR1 : FM VCO adjustment VR.

Notes: (for Main and Mechanism Control Section)

1. S101-1~S101-6 : Function select switch in "TAPE/POWER OFF" position. (T...TAPE/POWER OFF, R...RADIO, CD...CD)
2. S102 : Tape select switch in "NORMAL TAPE" position. (NO...NORMAL TAPE, CR...CrO_2 TAPE)
3. S103 : Edit speed select switch in "HIGH SPEED" position. (N...NORMAL SPEED, H...HIGH SPEED)
4. S149 : Dolby NR switch in "OFF" position.
5. S151-1~S151-8 : Record/playback changing switch in "PLAYBACK" position. (P...PLAYBACK, R...RECORD)
6. S201-1~S201-3 : Forward/reverse changing switch in "FORWARD" position. (F...FORWARD, R...REVERSE) } DECK 2
7. S202 : FF/REW switch in "OFF" position.
8. S203 : PLAY switch in "OFF" position.
9. S204 : Motor switch in "OFF" position. } DECK 1
10. S205 : Motor switch in "OFF" position. .... DECK 2
11. S301 : AC/DC IN changing switch in "AC IN" position. (D...DC IN, A...AC IN)
12. VR101 : Bias current adjustment VR.
13. VR102 : Tape speed adjustment VR.
14. VR147, 247 : Record/playback level adjustment VR.
15. VR148, 248 : Playback level adjustment VR. .... DECK 1
16. VR149, 249 : Playback level adjustment VR. .... DECK 2
17. VR301-1, VR301-2 : XBS level control.
18. VR302-1, VR302-2 : Tone control.
19. VR303-1, VR303-2 : Volume control.

Notes: (for CD and LCD/Operation Switch Section)

1. S801 : Key 1 switch.
2. S802 : Key 2 switch.
3. S803 : Key 3 switch.
4. S804 : Key 4 switch.
5. S805 : Key 5 switch.
6. S806 : Key 6 switch.
7. S807 : Key 7 switch.
8. S808 : Key 8 switch.
9. S809 : Key 9 switch.
10. S810 : Key 10 switch.
11. S811 : Key +10 switch.

} NUMERIC SWITCH

12. S812 : Skip/search (FWD ▶▶/▶▶I) switch.
13. S813 : Skip/search (REV ◀◀/I◀◀) switch.
14. S814 : Play/stop switch.
15. S815 : Pause/clear switch.
16. S816 : Music scan/Remaining switch.
17. S817 : Repeat switch.
18. S818 : Programme/recall switch.
19. S819 : ATLS (Automatic Tape Level Setting) switch.
20. S820 : Close (CD cover close detection) switch.
21. S821 : Laser ON/OFF switch.
22. S822 : Rest switch.
23. VR701 : Best eye adjustment VR.
24. VR702 : Tracking balance adjustment VR.
25. VR703 : Focus offset adjustment VR.
26. VR704 : Focus gain adjustment VR.
27. VR705 : Tracking gain adjustment VR.
28. VR706 : Tracking offset adjustment VR.

⇨ : Radio (FM) Signal Line
▨ : CD Signal Line
➡ : Tape (Play) Signal Line
▯▯▯⇨ : Tape (REC) Signal Line
⇛ : Main (Radio/Tape/CD) Signal Line

MEASUREMENTS AND ADJUSTMENTS

■ TUNER SECTION

■ ALIGNMENT INSTRUCTION

Notes:
[E] ....For all European areas except [EB,EG,EF,Ei].
[EB] ....For United Kingdom. [EG] ....For F.R. Germany.
[EF] ....For France. [Ei]...............For Italy.

READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT	
●Set XBS level control to minimum. ●Set volume control to maximum. ●Set tone control to center. ●Set function select switch to radio.	●Set band switch to FM,MW or LW. ●Set FM mode /B.P switch to STEREO/II or STEREO/III. ●Set power source voltage to 12V DC. ●Output of signal generator should not be higher than necessary to obtain an output reading.
EQUIPMENT REQUIRED	
●Frequency counter. ●Oscilloscope(dual trace and trigger type.) ●Electronics AC volt meter.	●IF sweep generator. ●Signal generator.(AM,FM)

■LW and MW ALIGNMENT

	BAND	SIGNAL GENERATOR or SWEEP GENERATOR		RADIO DIAL SETTING	ELECTRONIC AC VOLTMETER or OSCILLOSCOPE	ADJUSTMENT	REMARKS
		CONNECTIONS	FREQUENCY				
		AM-IF ALIGNMENT					
(1)	MW	Fashion a loop of several turns of wire and radiate the signal into loop ANT of the reciver.	[E,EG,EF,Ei] .....455 kHz [EB].....459 kHz 30% Mod. at 400Hz	Point of non-interference.(on/ about 600kHz)	Headphones Jack (Refer to Fig.3)	T2 (AM IFT)	Adjust for maximum output.
		LW-RF ALIGNMENT					
(2)	LW	〃	[E,EB,EG,EF] ....136 kHz [Ei].......137 kHz	Tuning capacitor fully closed.	〃	L6(LW OSC Coil)	〃
(3)	LW	〃	297 kHz	Tuning capacitor fully open.	〃	CT6(LW OSC Trimmer)	〃
(4)	LW	〃	145 kHz	Tune to signal.	〃	(*1)L3-1(LW ANT Coil)	Adjust for maximum output.Adjust **L3-1** by moving coil along ferrite core.
(5)	LW	〃	285 kHz	〃	〃	CT3(LW ANT Trimmer)	Adjust for maximum output. Repeat steps (2)~(5).
	(*1) Fix antenna coil with wax after completing alignment.						
		MW-RF ALIGNMENT					
(6)	MW	〃	[E,EB,EG,EF] ....511 kHz [Ei].......514 kHz	Tuning capacitor fully closed.	〃	L7(MW OSC Coil)	Adjust for maximum output.
(7)	MW	〃	[E,EB,EG,EF] .....1,650 kHz [Ei].....1,645 kHz	Tuning capacitor fully open.	〃	CT1-3(MW OSC Trimmer)	〃
(8)	MW	〃	550 kHz	Tune to signal.	〃	(*1)L3-2(MW ANT Coil)	Adjust for maximum output.Adjust **L3-2** by moving coil bobbin along ferrite core.
(9)	MW	〃	1,500 kHz	〃	〃	CT1-4(MW ANT Trimmer)	Adjust for maximum output. Repeat steps (6)~(9).
	(* 1)Fix antenna coil with wax after completing alignment.						

■FM ALIGNMENT

	BAND	SIGNAL GENERATOR or SWEEP GENERATOR		RADIO DIAL SETTING	ELECTRONIC AC VOLTMETER or OSCILLOSCOPE	ADJUSTMENT	REMARKS
		CONNECTIONS	FREQUENCY				
		FM-IF ALIGNMENT					
(1)	FM	High side thru. 0.001μF to test point **TP3.** Negative side to test point **TP2.**	10.7MHz (400Hz sweep)	Point of noninterference.(on/ about 90 MHz)	Connect vert. amp.of scope to test point **TP5.** Negative side to test point **TP4.**	T1(FM 1st IFT)	Wave form is shown in Fig. 1.
(2)	FM	〃	〃	〃	〃	T3(FM 2nd IFT)	Wave form is shown in Fig. 2.
		FM-RF ALIGNMENT					
(3)	FM	Connect to test point **TP1** through FM dummy antenna.Negative side to test point **TP2.**	[E,EB,EF] .....86.2 MHz [EG,Ei] 87.38MHz	Variable capacitor fully closed.	Headphons Jack (Refer to Fig.3)	L2(FM OSC Coil)	(*2)Adjust for maximum output.
(4)	FM		[E,EB,Ei] .....109.2MHz [EG,Ei] 108.3MHz	Variable capacitor fully open.	〃	CT1-2(FM OSC Trimmer)	〃
(5)	FM		106MHz	Tune to signal	〃	CT1-1(FM ANT Trimmer)	(*2)Adjust for maximum output.Repeat steps (3)~(5).
	(* 2) Three output responses will be present; proper tuning is the center frequency.						

	FM SEPARATION ALIGNMENT				
	FM SIGNAL GENERATOR SOURCE CONNECTION	ELECTRONIC FREQUENCY COUNTER	ADJUSTMENT POINT (Refer to Fig.1)	SPECIFICATION	REMARKS
(6)	98MHz,60 dB(CW) Connect to test point **TP1** through FM dummy antenna. Negative side to test point **TP2.**	**TP6**.............(+) **TP7**.............(-)	VR1	19kHz	FM mode/B.P switch → STEREO Adjust **VR1** for **19kHz(±50Hz)** reading on an electronic counter.

<TAPE DECK SECTION>

■ ALIGNMENT INSTRUCTION

READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT	
●Set function select switch to tape/OFF. ●Set volume control to maximum. ●Set XBS level control to minimum. ●Set tone control to center. ●Set tape select switch to Normal or CrO2.	●FM mode/B.P switch to STEREO/II or STEREO/III. ●Set Dolby NR switch to OFF. ●Set power source voltage to 12V DC. ●Output of signal generator should not be higher than necessary to obtain an reading.
EQUIPMENT REQUIRED	
●Frequency counter. ●Electronic volt meter. ●Oscilloscope.	●Test tape QZZCFM:315Hz, 0dB • 8kHz, −20dB QZZCWAT : 3kHz,−10dB

ITEM	TEST TAPE	MEASUREMENT POINT	ADJUSTMENT POINT	PROCEDURE
(A)Azimuth	QZZCFM (8kHz,-20dB)	Headphones Jack (Refer to Fig.3)	Azimuth adjustment screw (Refer to Figs. 4 and 5)	Adjust the azimuth adujstment screw during repeated forward and reverse playback to obtain the maximum head azimuth alignment with both channels equal. Then screw-lock the adjustment in place.

ITEM	T
(B) Tape Speed	QZ (3k
(C) Bias Current (Deck 2 only)	Us an
(D) Bias OSC Frequency (Deck 2 only)	Us
(E) Playback level	QZ (3
(F) Record/ Playback level	QZ (3 an

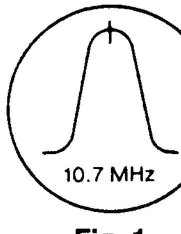


Fig. 1

EMARKS

n is shown in

m is shown in

st for maxi-
output.

〃

st for maxi-
output.Repeat
(3)~(5).

KS

n → STEREO
z(±50Hz)
onic counter.

EREO/III.

e higher

z, −20dB

nt screw
reverse
num head
channels equal.
ent in place.

ITEM	TEST TAPE	MEASUREMENT POINT	ADJUSTMENT POINT	PROCEDURE
(B) Tape Speed	QZZCWAT (3kHz: −10dB)	Headphones Jack (Refer to Fig. 3)	VR102	**Normal Speed Adjustment** 1.Insert test tape (QZZCWAT) in tape deck[2] and play it back. 2.Adjust **VR102** unit the measured value reaches **3000**$^{+40}_{-20}$ Hz. 3.Check tape deck [1] in the same way to make sure it meets the specification. tape deck [1]...... **±30** Hz of the speed of tape deck [2]. If it doesn't repeat steps 1 and 2 above. Note : This set uses one drive motor, so be sure to perform the adjustment in tape deck [2]. **Hight Speed Measurement** 4.Short test points **TP10** and **TP11** to set the high speed mode.(Refer to Circuit Board and Wiring Connection Diagram.) 5.Check that the measured speed is at least **1.7 times** faster than normal speed.
(C) Bias Current (Deck 2 only)	Use Normal tape and CrO2 tape	**TP21**............(+) **TP20**............(−)	VR101	Record mode FM mode/B.P switch →STEREO/Ⅱ ● Normal.....**12 mV±0.3 mV** ● CrO2 ....**18 mV±1.5 mV** Refer to Fig. 6.
(D) Bias OSC Frequency (Deck 2 only)	Use Normal tape	**TP21**............(+) **TP20**............(−)	L151	Record mode FM mode/B.P switch →STEREO/Ⅲ ● Normal.....**72 k±0.3 kHz** Refer to Fig. 6.
(E) Playback level	QZZCFM (315Hz:0dB)	Lch **TP22** ....(+) **TP23** ....(−) Rch **TP24** ....(+) **TP23** ....(−)	DECK 1 Lch.....VR148 Rch.....VR248 DECK 2 Lch.....VR149 Rch.....VR249	[DECK 1] (1)Set the unit to the playback mode. (2)Adjust **VR148** and **VR248** until the electronic voltmeter reaches the value of **15mV ± 0.5 dB**. [DECK 2] (3)Adjust **VR149** and **VR249** in the same way.
(F) Record/ Playback level	QZZCFM (315 Hz:0 dB) and Blank tape	Lch **TP22** ....(+) **TP23**..........(−) Rch **TP24**..........(+) **TP23**..........(−)	Lch ......VR147 Rch......VR247	(1)Insert test tape QZZCFM in DECK 1 and a blank tape in DECK 2. (2)Set the unit to the dubbing mode at normal speed. (3)Adjust**VR147**and**VR247** until the difference between the playback level for DECK 1 and the recording level for DECK 2 is within**1 dB.**

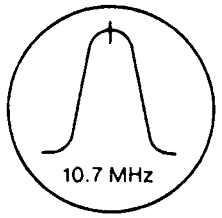


Fig. 1

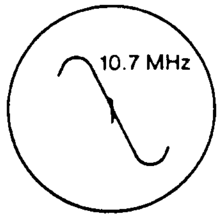


Fig. 2

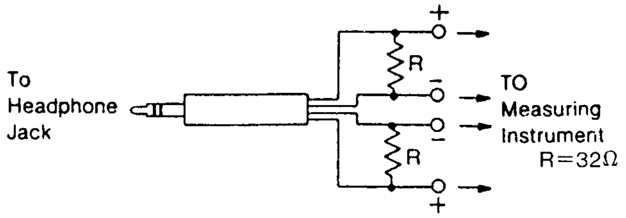

To
Headphone
Jack
+
R
−
−
R
+
TO
Measuring
Instrument
R=32Ω

Fig. 3

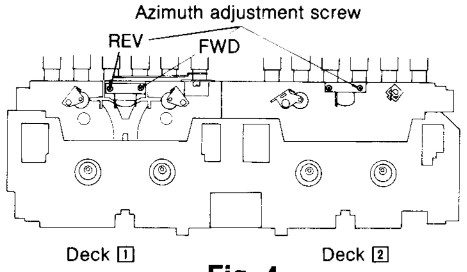

Azimuth adjustment screw
REV
FWD
Deck 1
Deck 2

Fig. 4

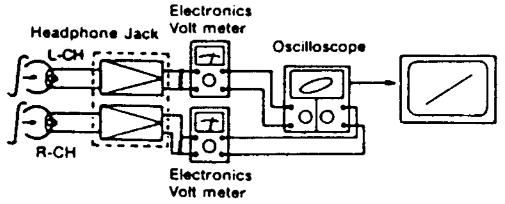
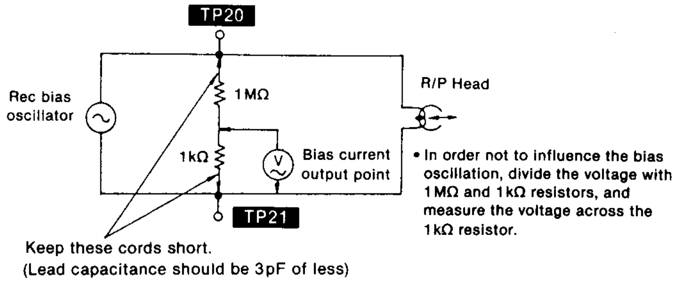

Headphone Jack
L-CH
R-CH
Electronics
Volt meter
Oscilloscope
Electronics
Volt meter

Fig. 5


TP20
Rec bias
oscillator
1MΩ
1kΩ
V
Bias current
output point
TP21
R/P Head

• In order not to influence the bias oscillation, divide the voltage with 1MΩ and 1kΩ resistors, and measure the voltage across the 1kΩ resistor.

Keep these cords short.
(Lead capacitance should be 3pF of less)

Fig. 6

■ ALIGMENT POINT (Radio and Tape Section)

∗ Please refer to Circuit Board and Wiring Connection Diagram for test point locations.

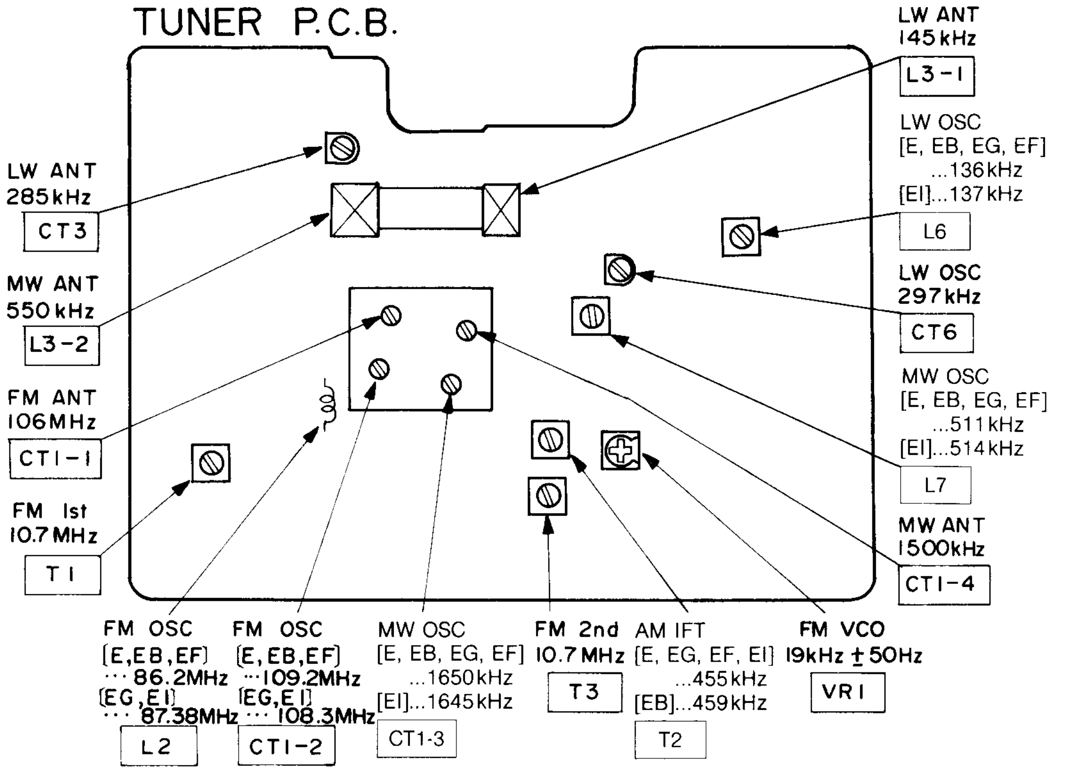

TUNER P.C.B.
LW ANT
285kHz
CT3
MW ANT
550kHz
L3-2
FM ANT
106MHz
CT1-1
FM Ist
10.7MHz
T1
LW ANT
145kHz
L3-1
LW OSC
[E, EB, EG, EF]
...136kHz
[EI]...137kHz
L6
LW OSC
297kHz
CT6
MW OSC
[E, EB, EG, EF]
...511kHz
[EI]...514kHz
L7
MW ANT
1500kHz
CT1-4
FM OSC
[E,EB,EF]
··· 86.2MHz
[EG,EI]
··· 87.38MHz
L2
FM OSC
[E,EB,EF]
···109.2MHz
[EG,EI]
··· 108.3MHz
CT1-2
MW OSC
[E, EB, EG, EF]
...1650kHz
[EI]...1645kHz
CT1-3
FM 2nd
10.7MHz
T3
AM IFT
[E, EG, EF, EI]
...455kHz
[EB]...459kHz
T2
FM VCO
19kHz ± 50Hz
VR1

Fig. 7

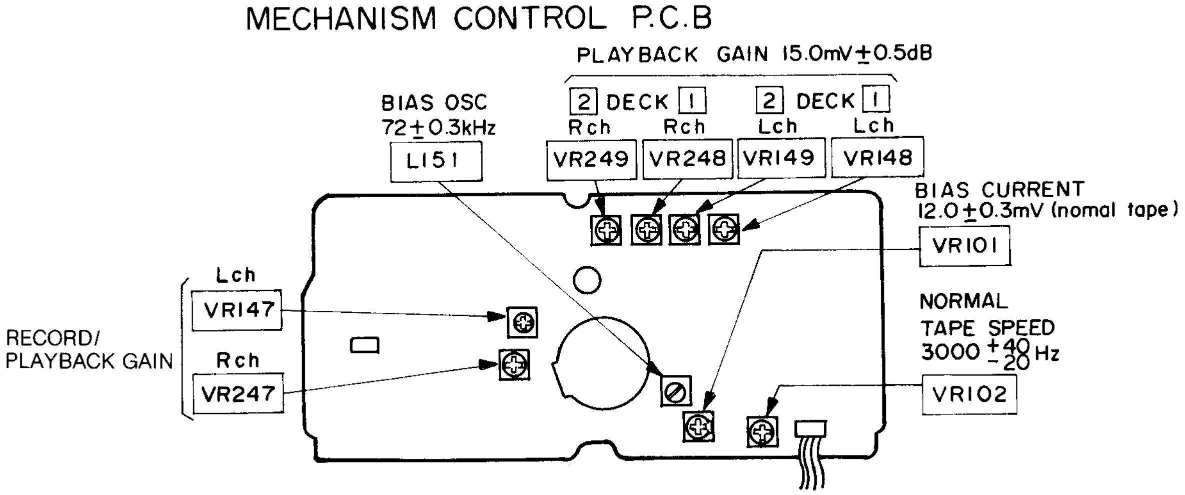

MECHANISM CONTROL P.C.B
PLAYBACK GAIN 15.0mV ± 0.5dB
BIAS OSC
72 ± 0.3kHz
L151
2 DECK 1
Rch
Rch
2 DECK 1
Lch
Lch
VR249
VR248
VR149
VR148
BIAS CURRENT
12.0 ± 0.3mV (nomal tape)
VR101
NORMAL
TAPE SPEED
3000 +40 −20 Hz
VR102
RECORD/
PLAYBACK GAIN
Lch
VR147
Rch
VR247

Fig. 8

■CD SECTION

To check the CD player unit turns on properly and repair or adjust it, follow the steps below.

Notes:
1. Even in operation, this unit does not allow the laser diode to function unless the disc holder cover is closed and safety switches S820,821 are operated.
2. Never attempt to look into the laser pickup lens when the disc holder cover is removed and safety switches S820,821 are operated.
3. When playing the test disc (SZZP1054C),set the controls as follows.
   - Volume control (VR303) **1/4**
   - XBS level control (VR301) .... **MIN**
   - Tone control (VR302) .... **CENTER**

•Installation Preparation

1. Remove the front cabinet according to steps 1 to 3 of the disassembly procedure (see pages 7 through 9). At this time, do not disconnect speaker connector (CS503).
2. Remove the CD player according to steps 5 and 6.
3. Remove the CD cover assembly and CD cover panel according to steps 27 and 28. Push the three clamp tabs in the directions of the arrows to remove the magnet (see Figs. 10 and 11).
4. Short-circuit terminals 2 and 4 of the connector CS701 on the CD PCB using a lead wire (see Fig. 12).

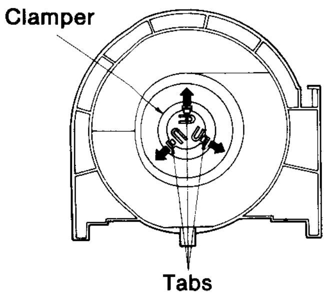


Fig. 10

(Cross-sectional view of the CD cover)

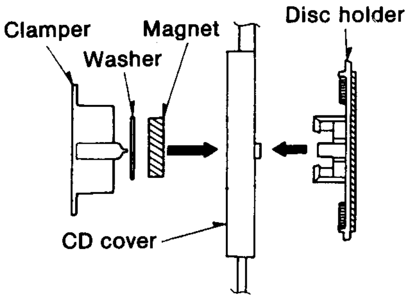


Fig. 11

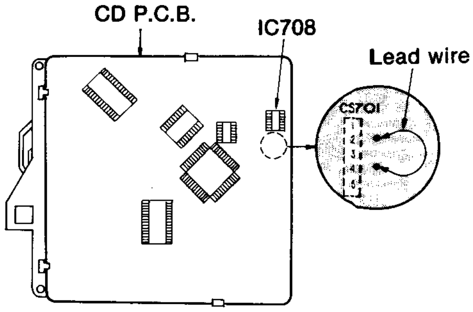


Fig. 12

•Installing the CD Player

1. Install the removed CD player perpendicular to the rear cabinet, as shown in Fig. 13.
2. Insert the CD player into the CD player unit. Use the two bosses of the cabinet to align the CD player (see Fig. 13).
3. Insert the test disc and magnet into the CD player in that order(see Fig. 14).

   Note: During installation, make sure the test disc does not contact the power supply PCB.
4. After installation, adjust the CD player.

•Playing the Test Disc

1. Operates safty switches S820, 821, see Fig. 14.
2. Select the CD play mode by pressing the play/stop key.

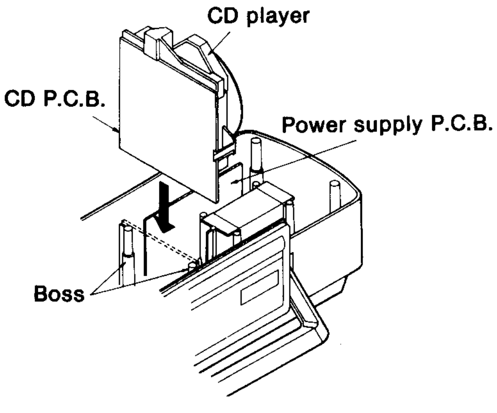


Fig. 13

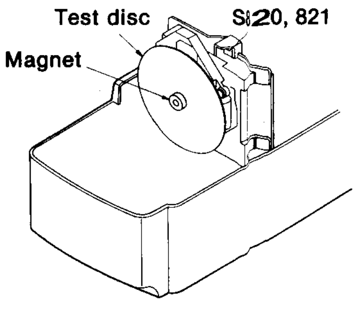


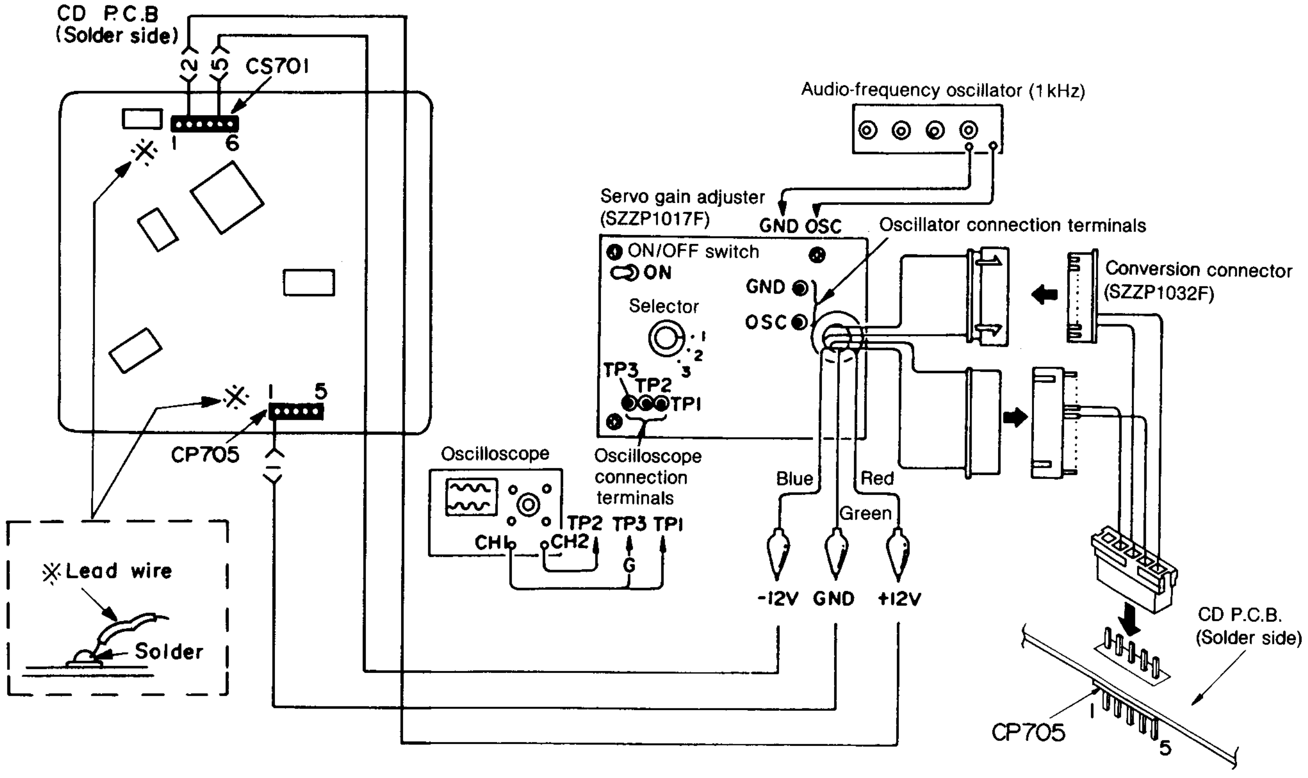
Fig. 14

ELECTRICAL ADJUSTMENT

Equipment used

- Servo gain adjuster (SZZP1017F)
- Test discs:
  Test disc(SZZP1014F) old or new type
  Inspection test disc (SZZP1054C)
  Uneven disc (SZZP1056C)
  Black band disc (SZZP1057C)
- Ordinary disc
- Two-channel oscilloscope (with trigger) of 30MHz or over
- Audio-frequency oscillator
- Conversion connector(SZZP1032F)

Servo Gain Adjuster and Its Connection


CD P.C.B
(Solder side)
2
5
CS701
1
6
※
1
5
CP705
※Lead wire
Solder
Audio-frequency oscillator (1 kHz)
Servo gain adjuster
(SZZP1017F)
GND OSC
Oscillator connection terminals
ON/OFF switch
ON
GND
OSC
Selector
1
2
3
TP3
TP2
TP1
Conversion connector
(SZZP1032F)
Oscilloscope
Oscilloscope connection terminals
CH1
CH2
TP2 TP3 TP1
G
Blue
Red
Green
-12V GND +12V
CD P.C.B.
(Solder side)
CP705
1
5

Note : Before making adjustments,make sure that function selector is set to "CD".

Adjustment Procedures

Step 1: Best eye (PD balance) adjustment

Step 2: Connect the servo gain adjuster

Step 3: Focus gain adjustment

Step 4: Tracking gain adjustment

Step 5: Focus offset adjustment

Step 6: Tracking offset adjustment

Step 7: Tracking offset balance adjustment

Step 8: Check of play operation after adjustment

BEST EYE(PD BALANCE) ADJUSTMENT

1.Insert the shorting connector of CP705 in its original position.

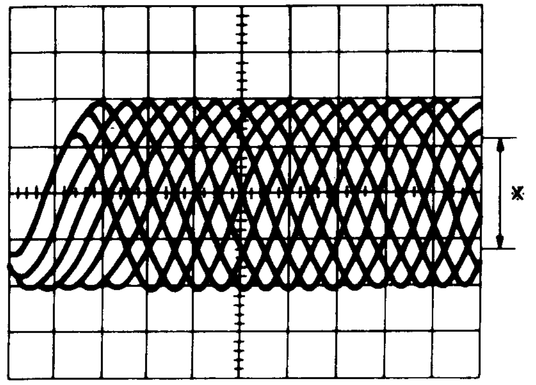
2.Connect CH1 of the oscilloscope to **TP703** (+) and **TP701** (-) of the main P.C.B.

Oscilloscope setting:VOLT........200mV
SWEEP.....0.5μsec.
INPUT.......AC

3.Turn **ON** the power switch of the player and insert a test disc (SZZP1014F or SZZP1054C).

4.Set the player to the play mode.

5.Adjust **VR701** so that the eye pattern of RF signal is stretched to maximum.



※ Most stretched eye pattern.

FOCUS GAIN ADJUSTMENT

1.Disconnect the shorting connector and connect the servo gain adjuster.

2.Connect the servo gain adjuster.

3.Set the selector switch of the servo gain adjuster to **2** and ON-OFF switch to **ON.**

4.Set the low frequency oscillator to a frequency of **1kHz** and an output voltage of **50mVp-p.** Then connect the oscillator to **OSC** (+) and **GND** (-) terminals of the servo gain adjuster.

5.Connect CH1 and CH2 of the oscilloscope to **TP1** and **TP2** of the servo gain adjuster.(**TP3** is the ground terminal.)

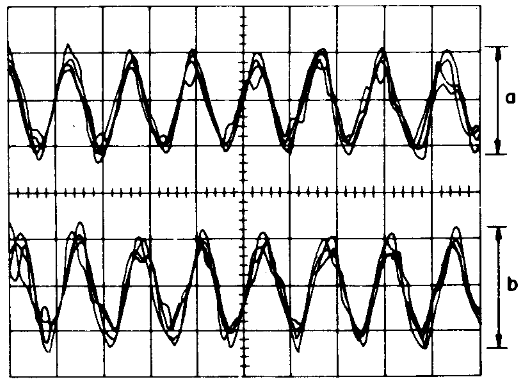
Oscilloscope setting:VOLT........100mV(both channels)
SWEEP.....1msec.
INPUT.......DC

6.Turn **ON** the power switch of the player and insert a test disc (SZZP1014F or SZZP1054C).

7.Set the player to the play mode.

8.Set the selector switch of the servo gain adjuster from **"2" to "3".**

9.**1kHz** signals will be displayed on the oscilloscope. Adjust **VR704** until the waveform amplitudes of both channels are equal.



* Make a=b

10.Shift the selector switch of the servo gain adjuster from **"3" to "2".**

TRACKING GAIN ADJUSTMENT

1.Oscilloscope setting and connections are same as above.

2.Set the low frequency oscillator to a frequency of **1kHz** and an output voltage of **50mVp-p.**

3.**Turn ON** the power switch of the player and insert the test disc (SZZP1014F or SZZP1054C).

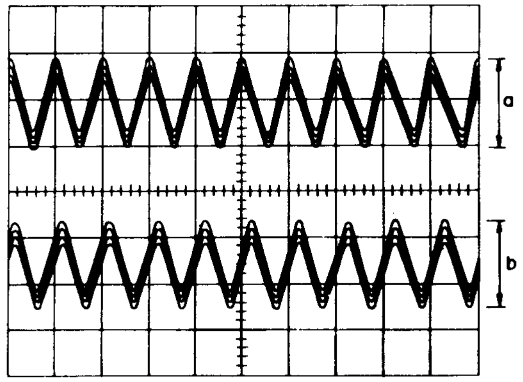
4.Set the player to the play mode.

5.Set the selector switch of the servo gain adjuster from **"2" to "1".**

6.**1kHz** signals will be displayed on the oscilloscope. Adjust **VR705** until the waveform amplitudes of both channels are equal.

7.Shift the selector switch of the servo gain adjuster from **"1" to "2".**

Note: When indicated in the manual,
set the rotary switch to "2" and
the ON/OFF switch of the servo gain
adjuster (SZZP1017F)to "ON".



*Make a=b

FOCUS OFFSET ADJUSTMENT

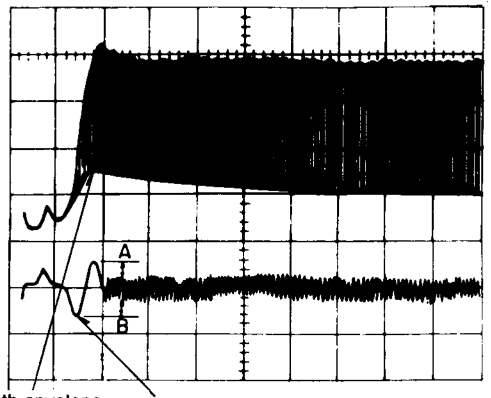
1.Connect CH1 of the oscilloscope to **TP703** (+) and **TP701** (-) of the main P.C.B.
Connect CH2 of the oscilloscope to **TP705** (+) and **TP701** (-)of the main P.C.B.

Oscilloscope setting:VOLT.....100 mV(CH1),200 mV(CH2)
SWEEP..0.5msec.
INPUT....DC(CH1),AC(CH2)
MODE....NORM
(Triggering via CH2)

2.Turn **ON** the power switch of the player and insert the test disc (SZZP1057C).

3.Set the player to the play mode.

4.Check the waveform of CH1 and CH2 on the oscilloscope and adjust **VR703** , so that the waveform around the triggering point becomes as shown in the illustration.



Smooth envelope **Minimize the amplitude or make A=B**

TRACKING OFFSET ADJUSTMENT

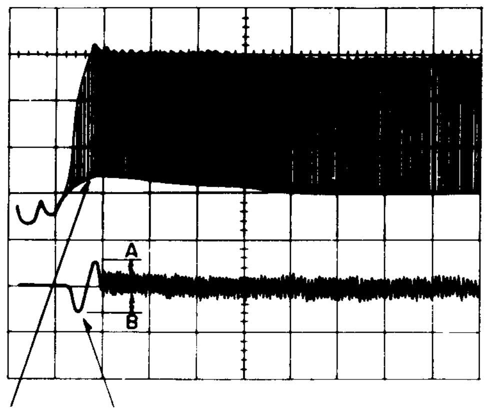
1.Connect CH1 of the oscilloscope to **TP703** (+) and **TP701** (-) of the main P.C.B.
Connect CH2 of the oscilloscope to **TP704** (+) and **TP701** (-)of the main P.C.B.

Oscilloscope setting:VOLT.....100 mV(CH1),200 mV(CH2)
SWEEP..1msec.
INPUT....DC(CH1),AC(CH2)
MODE....NORM
(Triggering via CH2)

2.Turn **ON** the power switch of the player and insert the test disc (SZZP1057C).

3.Set the player to the play mode.

4.Check the waveform of CH1 and CH2 on the oscilloscope and adjust **VR706** , so that the waveform around the triggering point becomes as shown in the illustration.



Smooth envelope **Minimize the amplitude or make A=B**

TRACKING OFFSET BALANCE ADJUSTMENT

1.Set the low frequency oscillator to a frequency of **1.1 kHz** and an output voltage of **150 mVp-p.** Then connect the oscillator to **OSC** (+) and **GND** (-) terminals of the servo gain adjuster.

2.Connect CH1 of the oscilloscope to **TP703** (+) and **TP701** (-)of the main P.C.B.

Oscilloscope setting:VOLT........200mV
SWEEP.....0.5 mV
INPUT.......AC

3.Turn **ON** the power switch of the player and insert a test disc (SZZP1014F or SZZP1054C).

4.Set the player to the play mode.

5.Set the selector switch of the servo gain adjuster from **"2" to "1".**

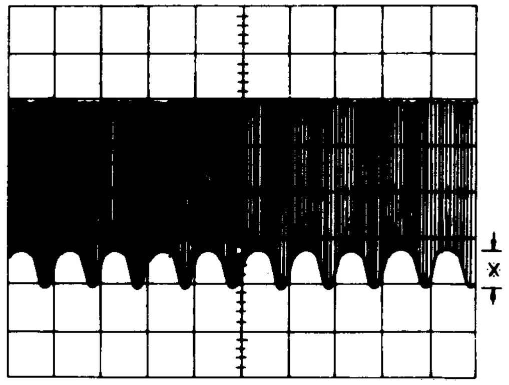
6.Adjust **VR702** so that the output waveform is as shown (jitter is minimized).

7.Shift the selector switch of the servo gain adjuster from **"1" to "2".**

8.Turn **OFF** the power switch of the player.

9.Disconnect the servo gain adjuster,and insert the shorting connector of CP705 to the original position.

10.Remove the lead wire from the rear of connector CS701 (See Fig.12).



※Jitter should be minimized.

CHECK OF PLAY OPERATION AFTER ADJUSTMENT

Check of skip search

1. Play an ordinary disc.
2. Press the skip button and verify skip search operation (forward and reverse).

Check of manual search

1. Play an ordinary disc.
2. Press the manual search button and verify that smooth manual search can be performed at low and high speeds (forward and reverse).

Check of playability

1. Play test disc (SZZP1054C).
2. Play track No.6 (wedge 0.7mm) and verify that there is no skip sound or noise.
3. Play the track No.13 (black dot 0.7mm) and verify that there is no skip sound or noise.

Note: When checking for playability, be sure to use headphones, with output to the speakers shut off. If speakers are used for this check, it will not be possible to obtain correct results.

OPTICAL PICKUP ADJUSTMENT

Measuring Instruments and Special Tools

- Two-channel oscilloscope (with trigger) of 30MHz or over
- Test discs
  Test disc (SZZP1014F) old or new type
  Inspection test disc (SZZP1054C)
  Uneven disc (SZZP1056C)
- Hexagonal wrench
- Screw lock paint (RZZ0L01)
- Feeler gauge(RZZ0297)

TURNTABLE HEIGHT ADJUSTMENT

1. Insert the 0.9mm feeler gauge(RZZ0297) as ahown below.
2. Adjust the turntable height to 0.9mm with the feeler gauge as shown in Fig.2.
3. Tighten the turntable set-screw by using a 1.27mm hexagonal wrench.
4. Adjust the focus offset. **(VR703)**
5. When **VR703** is outside the variable range during the adjustment, slightly adjust the turntable height.

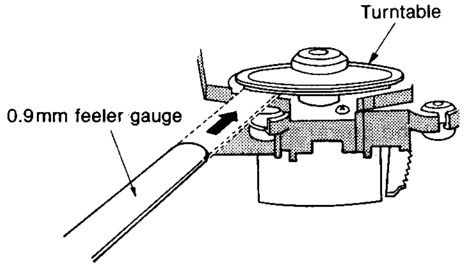

Turntable
0.9mm feeler gauge

Fig. 1

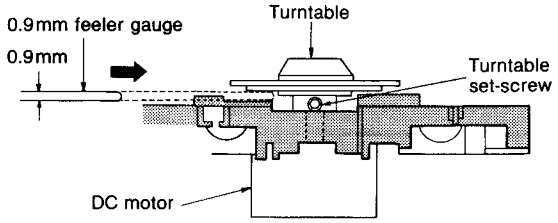

0.9mm feeler gauge
0.9mm
Turntable
Turntable set-screw
DC motor

Fig. 2

MECHANICAL ADJUSTMENT

1. Connect CH1 of the oscilloscope to **TP703** (+) and **TP701** (-) of the main P.C.B.
   Oscilloscope setting: VOLT........200mV
   SWEEP.....0.2μsec
   INPUT.......AC
2. Turn **ON** the power switch of the player and insert the test disc (SZZP1056C)and play Track No.5.
3. Using the manual search buttons , move the pickup so that the mechanical adjustment screws line up with the adjustment holes in the bottom panel.

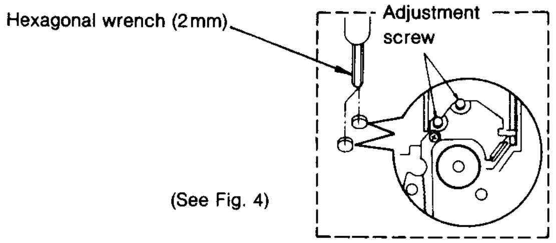
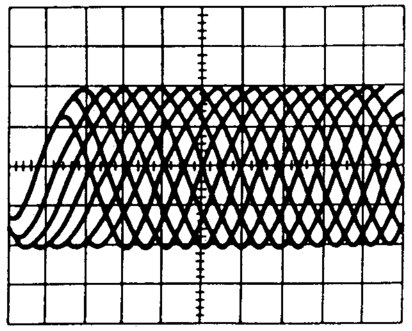

Hexagonal wrench (2mm)
Adjustment screw
(See Fig. 4)

Fig. 3

Note: The mechanical adjustment screws have been locked with screw lock paint at the factory. They might be hard to turn.

4. Monitoring RF signal on the oscilloscope , adjust **the two adjusting screws** alternatelywith the 2mm hexagonal wrench so that the vertical fluctuation of RF signal is minimized and the eye pattern is most stretched.
5. Turn **OFF** the power switch of the player.
6. After adjustment , apply **screw lock paint(RZZ0L01)** to the adjusting screws.



■ ALIGMENT POINT

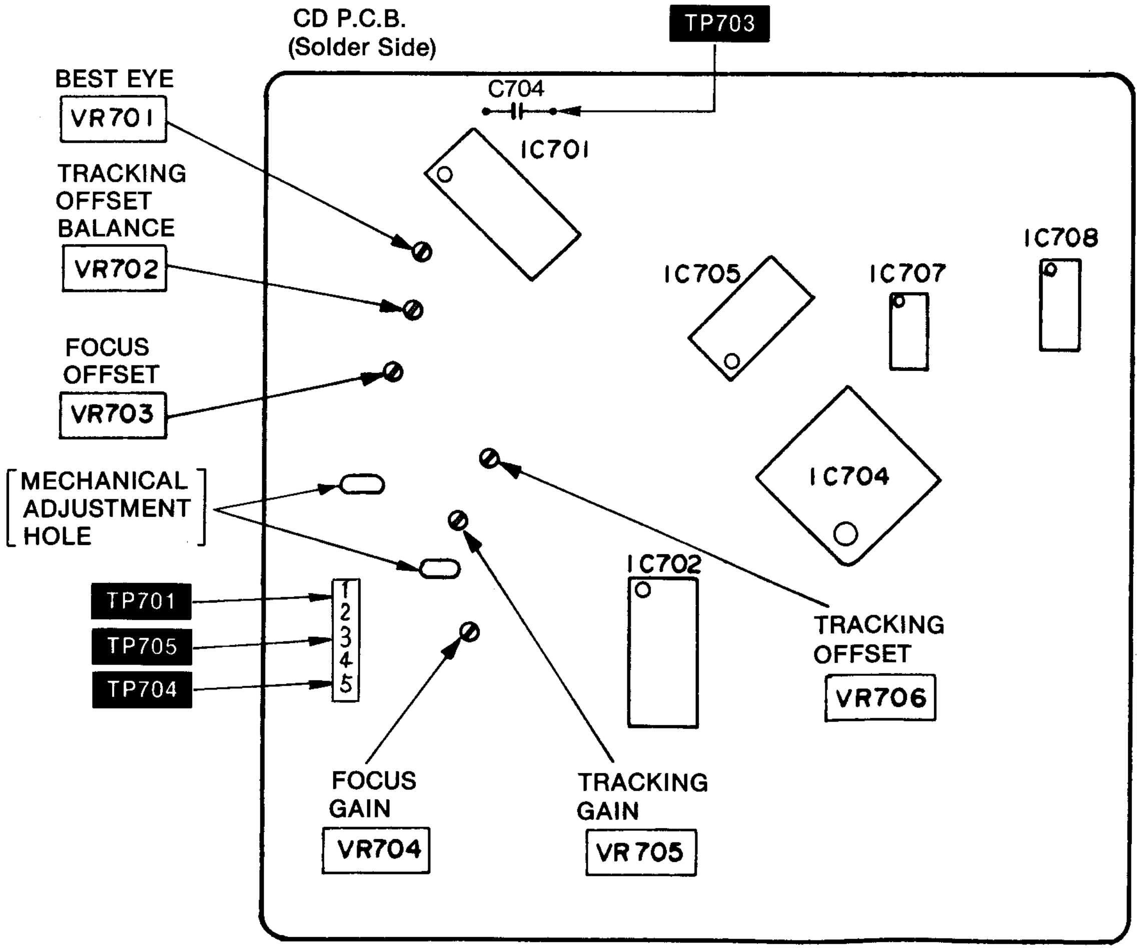

CD P.C.B.
(Solder Side)
TP703
BEST EYE
VR701
C704
IC701
TRACKING
OFFSET
BALANCE
VR702
IC705
IC707
IC708
FOCUS
OFFSET
VR703
IC704
MECHANICAL
ADJUSTMENT
HOLE
IC702
TP701
TP705
TP704
1
2
3
4
5
TRACKING
OFFSET
VR706
FOCUS
GAIN
VR704
TRACKING
GAIN
VR705

Fig. 4

FUNCTIONS OF IC TERMINALS

•IC704: MN6617

Terminal No.	Terminal Symbol	I/O	Function
1	BLKCK	O	This terminal outputs a 75 Hz clock signal of sub-code block (data Q) to IC801 (pin 83).
2	$\overline{\text{CLOCK}}$	O	This terminal outputs a 7.35 Hz clock signal of sub-code block (data Q) to IC801 (pin 78).
3	$\overline{\text{SUBQ}}$	O	This terminal outputs a signal of sub-code block (data Q) to IC801 (pin 79).
4	CRC	——	——
5	$\overline{\text{RST}}$	I	This is the terminal for resetting the system, e.g. when the unit is powered OFF, the circuit is reset by LOW level signals.
6	MLD	I	MCLK and MDATA signals are input to the terminal from IC801 (pin 15).
7	MCLK	I	This terminal receives 8 bit data reading clock signal from IC801 (pin 12).
8	MDATA	I	This IC receives a data signal input (8 bit) IC from IC801 (pin 13).
9	DMUTE	I	This terminal receives a "HI" level muting signal.
10	$\overline{\text{TRON}}$	I	This terminal receives a tracking servo control signal. At a "LOW" level...the tracking servo is ON.
11	STAT	O	This terminal outputs data signals (CRC, STOP) to IC801 (pin 19).
12	SMCK	O	This terminal outputs a clock signal of 4.2336 MHz to IC801.
13	PMCK	——	——
14	ITC	I	This is the track counter input terminal, but it is not used in this unit. It is connected to a +5V power supply.
15	$\overline{\text{TEST}}$	——	——
16	X2	O	These are the clock transmission terminals (16.9344 MHz).
17	X1	I	
18	SEL	I	This is the data output selection input terminal. At a "HI" level...parallel data output. At a "LOW" level...serial data output. *When connected, this unit is at a "HI" level.
19	LOG/ WDCKS	——	——
20	RDG	——	——
21	DEMPH	O	This is the de-emphasis control output terminal. At a "HI" level...the de-emphasis control is set ON.
22	IPFLAG	——	——
23	FLAG0	——	——
24	FLAG6	——	——
25	XCK	O	This terminal outputs a clock signal of 16.93 MHz to IC701 (pin 1).
26	DA15	O	These terminals output L and R signals to IC707 (pins 6 and 7.)
28	DA13		
31	GND	O	For ground connection.
32	DA10	O	These terminals output L and R signals to IC707 (pin 5).
27	DA14	——	——
29	DA12		
30	DA11		
33~42	DA9~ DA0		
43~50	D7~D0	I/O	These terminals input/or output RAM data signals (16 K) to IC705.
51	RAMOE	O	This terminal outputs RAM $\overline{\text{OE}}$ control signals (16 K) to IC705.
52	RAMWE	O	This terminal outputs RAM $\overline{\text{WI}}$ control signals (16 K) to IC705.
53~63	RAMA0~ RAMA10	O	These terminals output RAM address signals (16 K) to IC705.
64	PC	——	——
65	EC	O	This is the spindle motor control output terminal. The spindle motor operates at a "LOW" level.
66	FG	——	——
67~71	——	——	——
69, 73	VDD	I	To be connected to a +5V power supply.
72	PCK	I	This is the PLL extraction clock input terminal (f=4.2336 MHz).
74	EFM	I	This terminal receives EFM input signals (PLL) from IC702 (pin 21).
75	SRF	I	This terminal receives EFM input signals (DSL) from IC702 (pin 19).
76	DO	I	This terminal receives a drop-out input signal from IC701 (pin 33). At a "HI" level...drop-out comes into effect.
77	CLVS	——	——
78	FPC	O	This terminal outputs a frequency comparison signal for PLL use to IC702 (pin 14).
79~84	——	——	——

•IC801: MN17861RRH-2

Terminal No.	Terminal Symbol	I/O	Function
1	$\overline{\text{RST}}$	I	This terminal resets the microcomputer to its initial status, e.g. when the unit is powered OFF and at "LOW" level.
3	TCNT (X1)	I	This is the terminal for counting the numbers of tracks crossed on a disk.
4	V_{SS}	——	For ground Connection
6	OSC1	I	This is the input terminal for the reception of the microcomputer's clock signal. This 4.2336-MHz signal from IC704 (pin 12) is input into this terminal.
7	V_{DD}	I	To be connected to a +5V power supply.
10	MAR	O	When the unit is in ATLS operation, this terminal outputs a mute signal ("HI" level) which sets the unit in the mute operational mode.
11	MOTOR	O	During synchronized tape recording, this terminal outputs the start signal to activate the motor.
12	MCLK	O	This terminal outputs the clock signal required for reading 8-bit data to IC605 (pin 7) and IC704 (pin 4).
13	MDATA	O	This terminal outputs 8-bit data for the control of IC704.
14	$\overline{\text{REQ}}$	I	When the S816 switch is set to ON, the CD unit will be set to the MUSIC SCANNER/REM TIME operational mode.
15	MLD	O	This terminal outputs MCLK and MDAT writing signals to IC605 and IC607.
16	SENSE	I	This terminal receives data on the number of disk tracks crossed from IC702 (pin 24).
17	$\overline{\text{FLOCK}}$	I	This terminal receives a focus clock signal from IC702 (pin 26). When the focus goes into effect, this terminal receives a "Low" level input.
18	BRAKE	I	Input terminal for sttoping or free-running the turntable when safety switch S820 is closed (disc holder cover open) during play. "High"...stop (brake on), "Low"...free run and stop
19	STATUS	I	This terminal receives data input (CRC, STOP) from IC704 (pin 11).
20~23	CNT1~4	O	These terminals output 4-bit data on operation on the CD Player unit to IC702 (pins 30-33). Data: PLAY, ▷▷, ◁◁, PAUSE and STOP

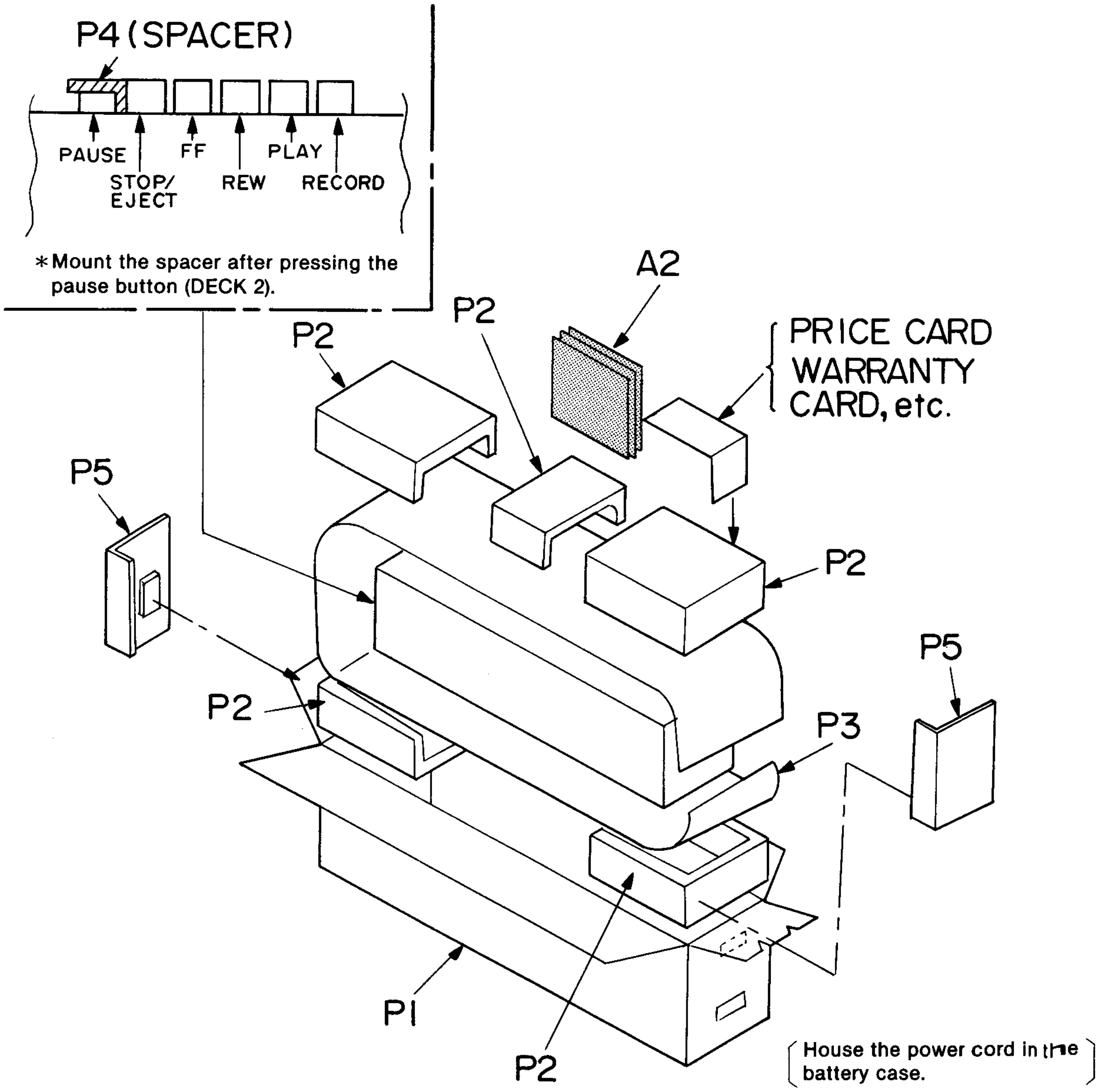
Terminal No.	Terminal Symbol	I/O	Function
24	POWER	I	This terminal receives a power consumption cut signal from IC703 (pin 16) when the unit is in the STOP mode. In the STOP mode...a "Low" level signal is input into this terminal.
25	TRV FWD	O	When the Traverse is moved outward, this terminal outputs a "HI" level signal to IC702 (pin 34).
26	TRV REV	O	When the Traverse is moved inward, this terminal outputs a "HI" level signal to IC702 (pin 35).
27	MUTE	O	This terminal outputs a mute signal.
28~31	P40~P43	I/O	These are the INPUT/OUTPUT scan terminals.
36~38	VL1~VL3	I	Power input terminals for the LCD driver.
39~41	COM0~ COM2	O	Common output signal terminals for the LCD driver.
43~63	SEG0~ SEG20	O	Segmental output signal terminals for the LCD driver.
75	$\overline{\text{TIMER}}$	I	The timer operates after a "HI" level signal is input into this terminal when the CD unit is in the timer control playback mode.
76	$\overline{\text{ATLS}}$	I	This is the input terminal for the automatic setting of the CD recording level. At a "Low" level the recording level will be set automatically.
77	REC H	I	Input terminal for detecting the cassette deck key status during CD play. "High"...standby for recording, "Low"...stop, play, etc.
78	CLOCK (SBTA)	I	This terminal receives a 7.35kHz clock signal of sub-code block (data Q) from IC704 (pin 2).
79	$\overline{\text{SUBQ}}$ (SBTA)	I	A data Q sub-code signal from IC704 (pin 3) is input into this terminal.
82	$\overline{\text{IRQ1}}$	I	This is the OPEN/CLOSE CD compartment cover input terminal. When the CD compartment cover is open, a "LOW" level signal is input into this terminal and the IC is reset to its initial status.
83	BLKCK ($\overline{\text{IRQ0}}$)	I	A 75BHz clock signal of sub-code block (data Q) is input into this terminal from IC704 (pin 1).

IMPORTANT PARTS

When replacing the following components, use only manufacturer's specified parts in the shaded area of cabinet parts location and below figure.

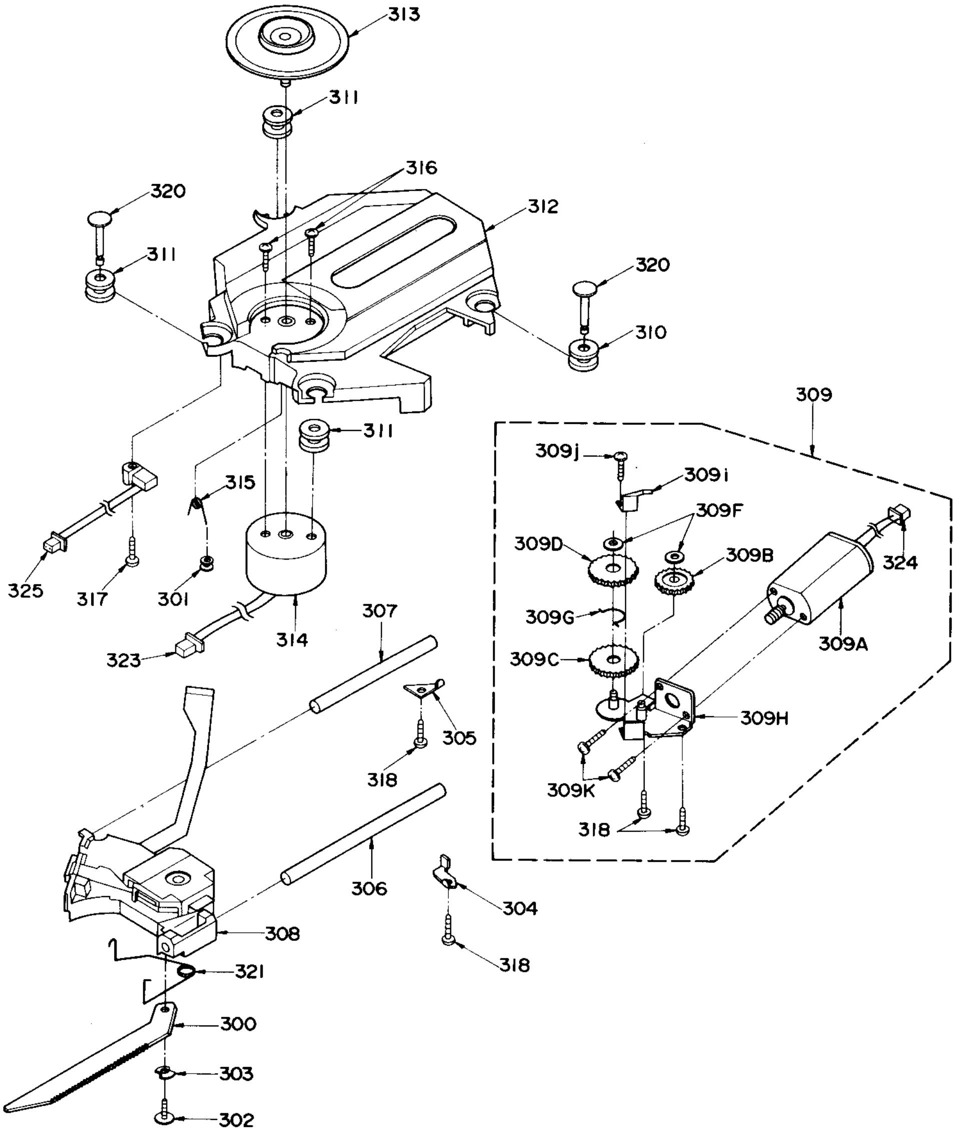
Parts Name	Remarks
Traverse Unit	
Operating Instruction	**A2**
Name Plate	**70D**
Rear Cabinet	**70**
Front Cabinet	**62**

ACCESSORY AND PACKING MATERIALS


P4 (SPACER)
PAUSE
STOP/ EJECT
FF
REW
PLAY
RECORD
*Mount the spacer after pressing the pause button (DECK 2).
A2
P2
P2
PRICE CARD WARRANTY CARD, etc.
P5
P2
P5
P2
P3
P1
P2
House the power cord in the battery case.

CD PLAYER (TRAVERSE) PARTS LOCATION

[See parts list on page 60.]


313
311
316
320
312
311
320
310
309
311
309j
309i
309F
309D
309B
324
315
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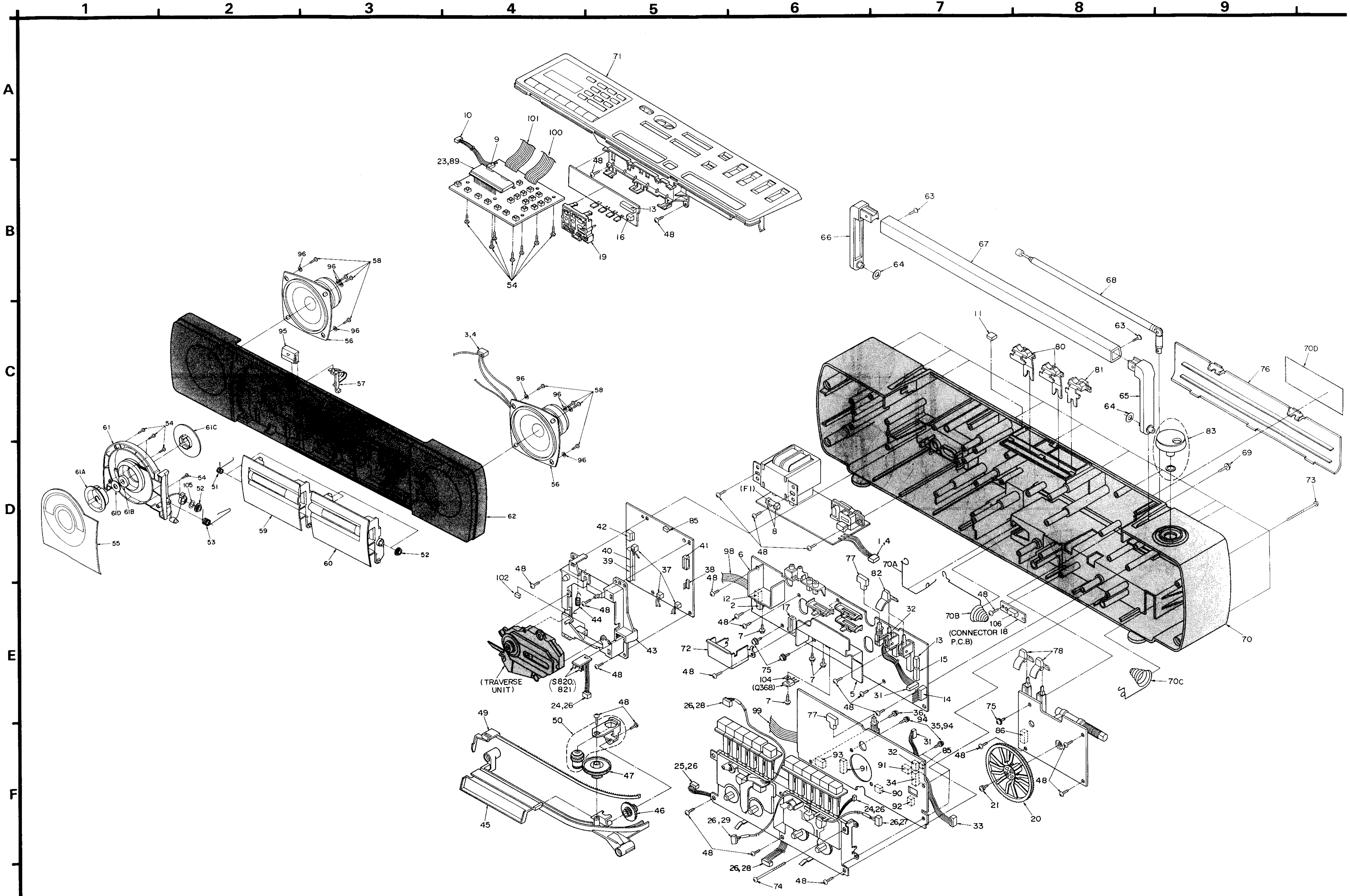
317
301
309G
309A
314
307
309C
323
309H
305
318
309K
318
306
304
308
318
321
300
303
302

CABINET PARTS LOCATION **[See parts list on page 61.]**


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
71
10
101
100
9
23,89
48
13
16
48
19
54
63
66
67
64
68
11
63
80
81
65
64
83
76
70D
69
73
70
96
58
96
96
56
95
57
3,4
96
58
96
96
56
62
61
54
61C
61A
61D
61B
54
105
52
51
53
55
59
60
52
(F1)
8
48
1,4
42
85
41
40
39
37
38
48
98
6
12
2
17
48
7
32
77
82
70A
48
70B
106
(CONNECTOR 18 P.C.B)
13
15
14
31
5
7
75
104
(Q368)
7
72
48
102
48
48
44
43
48
(TRAVERSE UNIT)
(S820, 821)
24,26
49
50
48
47
46
45
26,28
99
77
48
36
94
35,94
31
85
93
32
91
34
90
92
24,26
26,27
33
25,26
26,29
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26,28
74
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75
86
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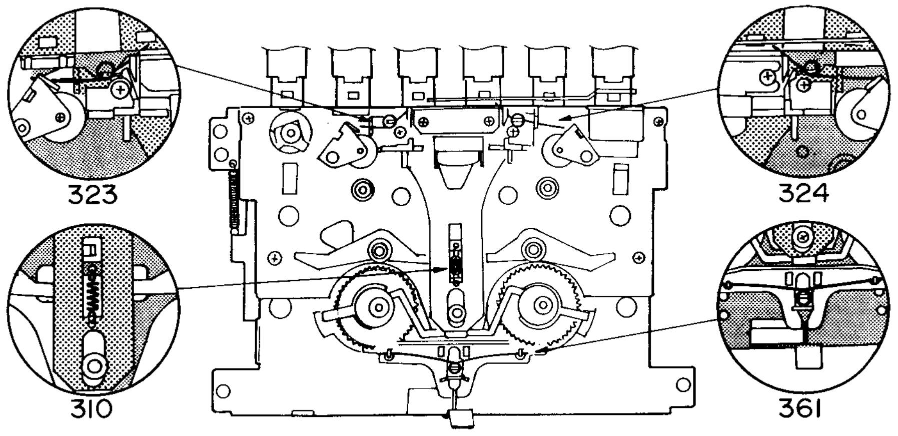
48
21
20
70C

■ SPRING PARTS LOCATION (DECK [1])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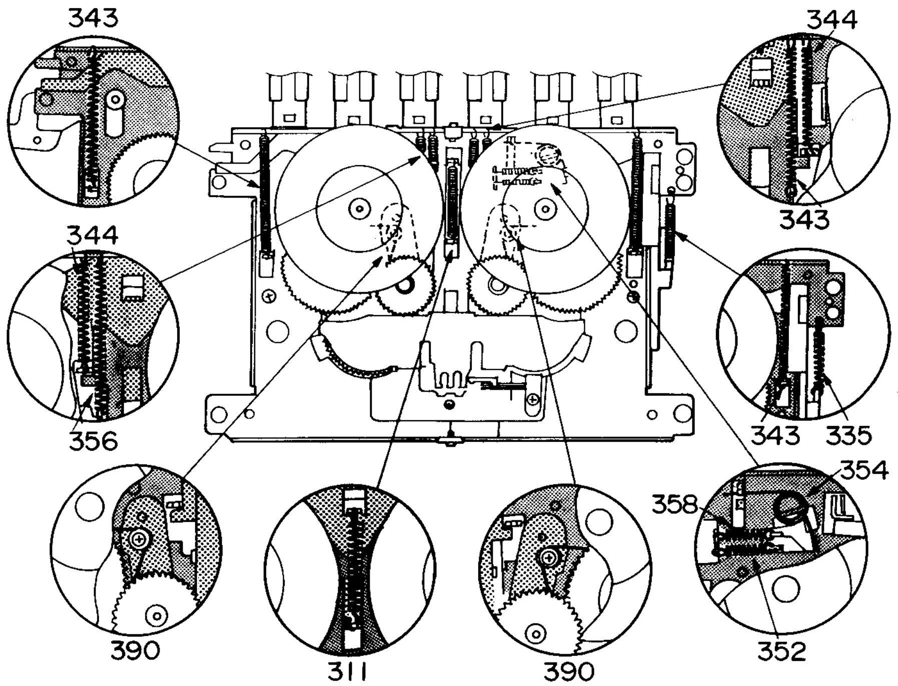
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344
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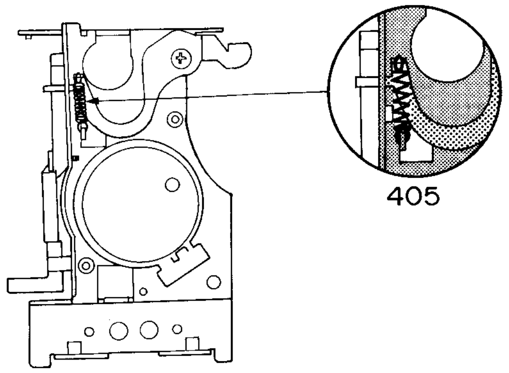
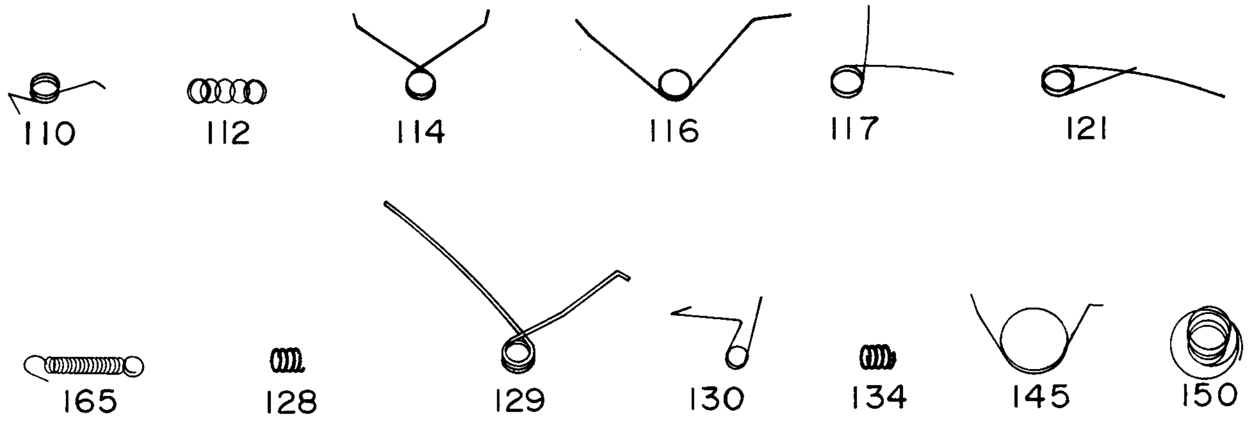
352



■ SPRING ILLUSTRATION (DECK [2])

The spring illustration used shows the actual size so it can be used to check the shape of the spring.
(The illustration shows the spring separated from the mechanism.)


110
112
114
116
117
121
165
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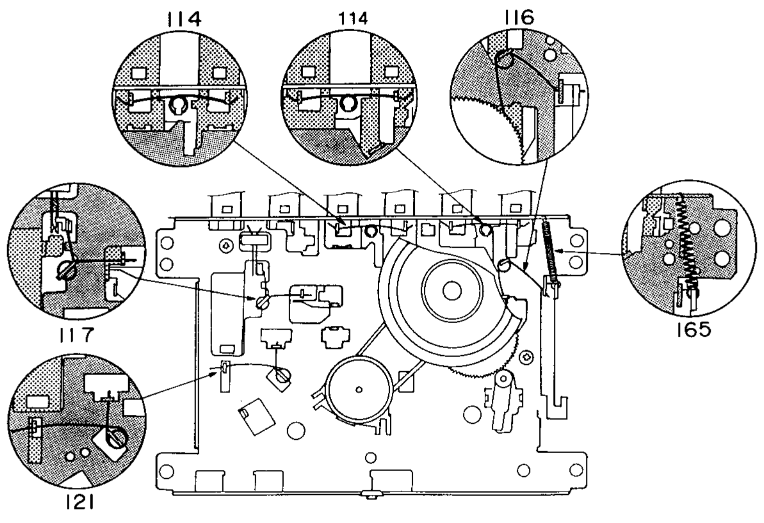
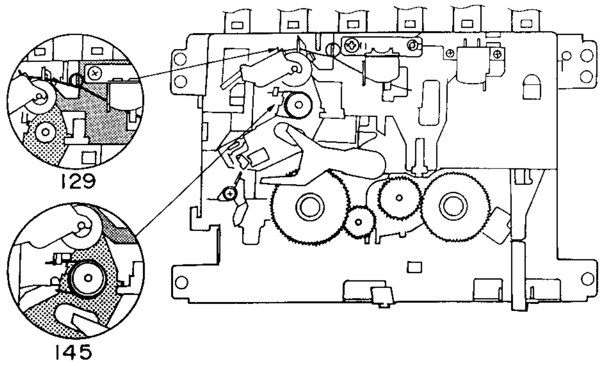
134
145
150

■ SPRING PARTS LOCATION (DECK [2])

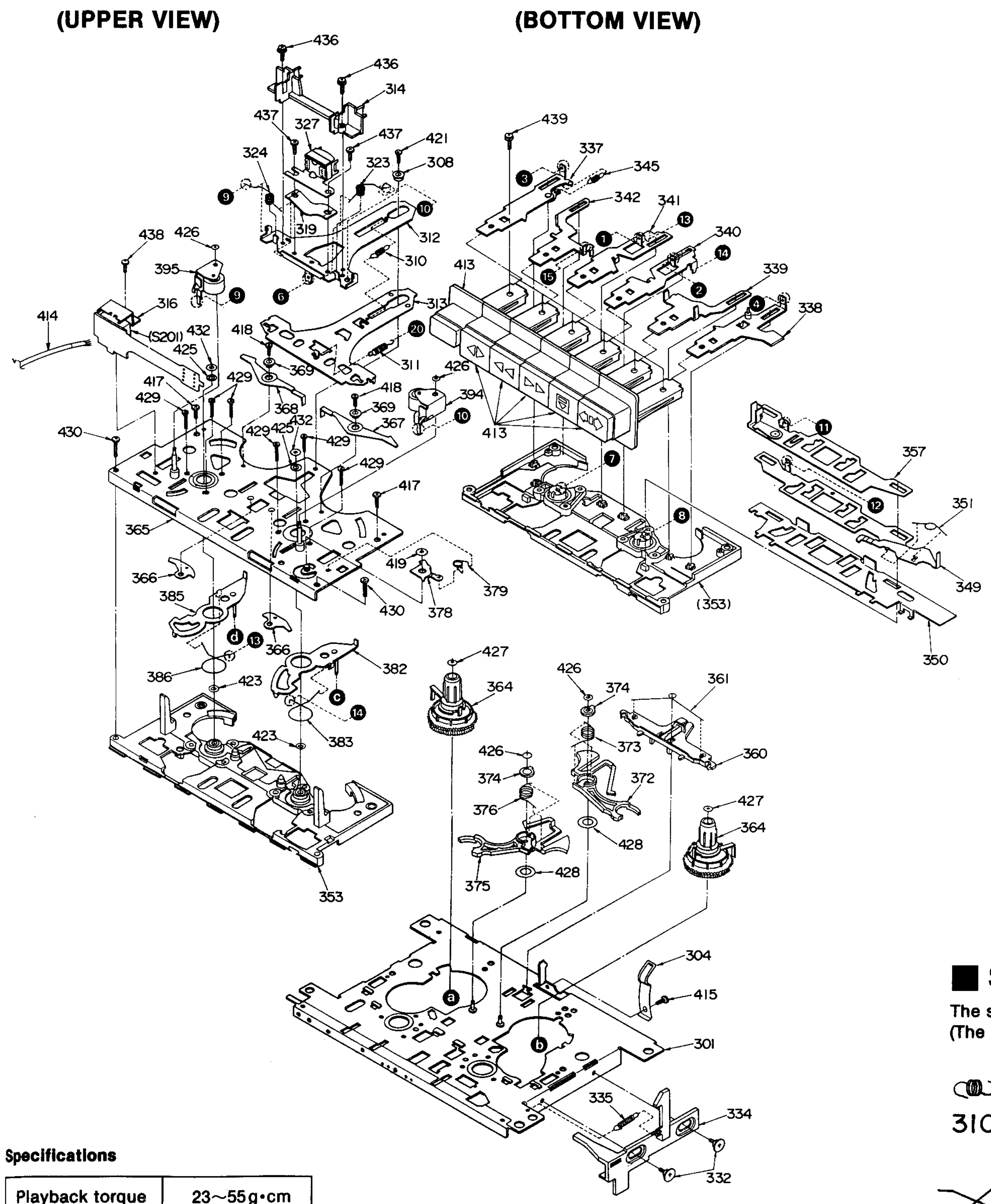

114
114
116
117
165
121



MECHANISM PARTS LOCATION (DECK [1]) [See parts list on page 59, 60.]

1 2 3 4 5 6 7 8 9

A B C D E F


(UPPER VIEW) (BOTTOM VIEW)
436
436
314
437
327
437
421
324
323
308
9
10
319
312
310
438
426
395
9
6
313
316
414
(S201)
432
425
418
20
311
417
429
429
369
368
418
369
367
430
429
425
432
429
429
417
365
419
379
378
430
366
385
d
13
366
382
386
423
c
14
423
383
353
439
337
345
3
342
341
1
13
340
14
339
2
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338
413
15
426
394
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413
7
8
(353)
11
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12
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349
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427
364
426
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a
b
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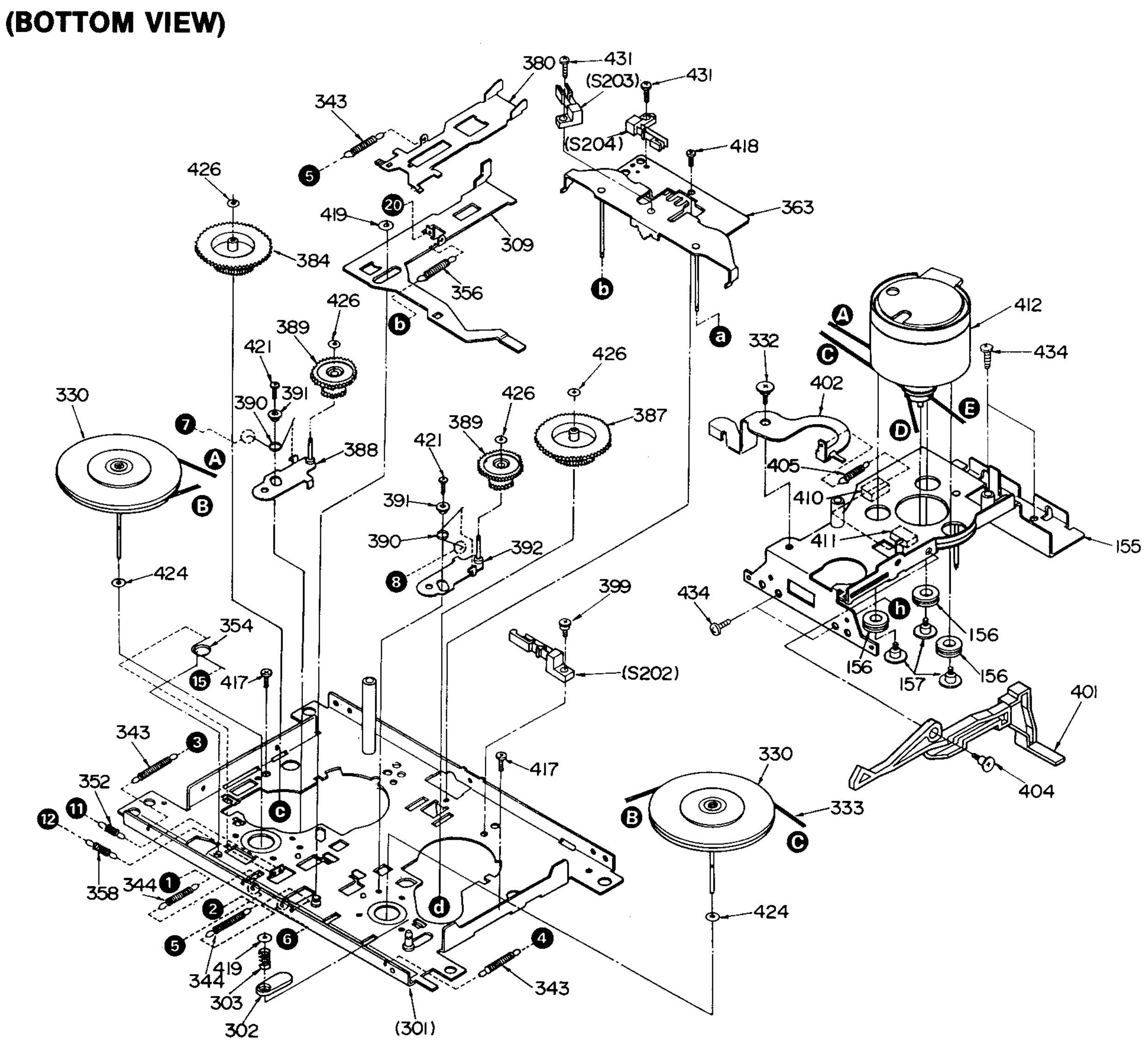
332


(BOTTOM VIEW)
380
431
(S203)
431
343
418
5
(S204)
426
20
419
309
363
384
356
b
426
b
a
332
412
434
389
421
391
390
426
387
330
7
A
388
B
421
389
402
A
C
E
D
405
410
411
155
391
390
392
8
424
399
434
354
(S202)
156
h
15
417
156
157
156
401
343
3
352
11
12
c
417
330
333
B
C
404
358
344
1
2
5
344
419
6
303
302
d
4
343
(301)
424

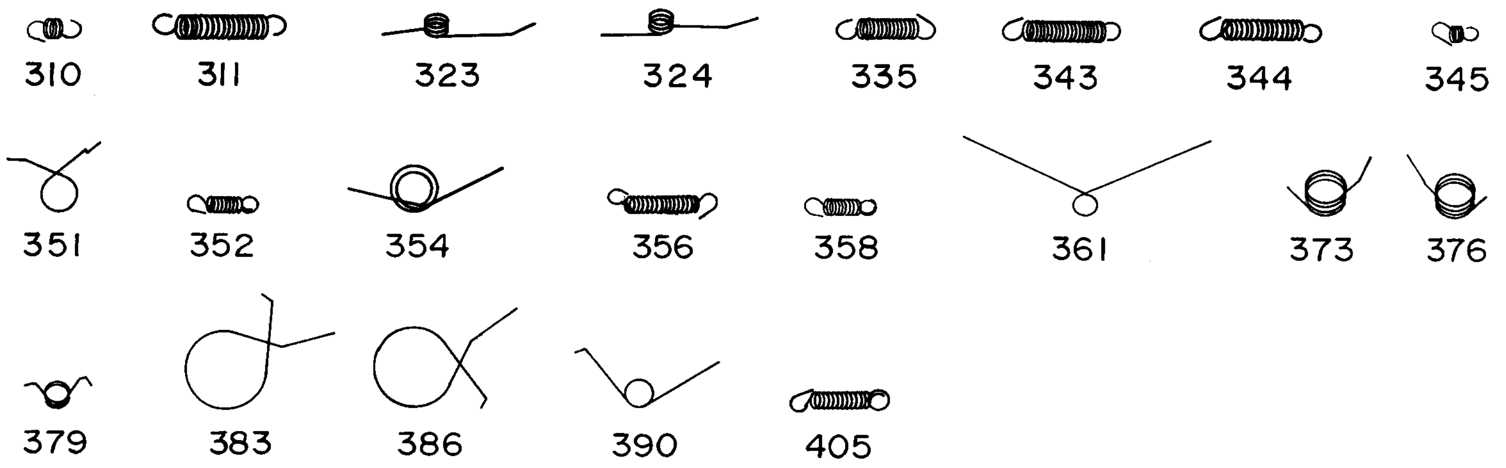
Specifications

Playback torque	23～55g·cm
FF/REW torque	55～130g·cm
Pressure of pressure roller	240±50g
Wow and flutter	Less than 0.22% (WRMS)

Mechanical Auto-Stop

■ SPRING ILLUSTRATION (DECK [1])

The spring illustration used shows the actual size so it can be used to check the shape of the spring.
(The illustration shows the spring separated from the mechanism.)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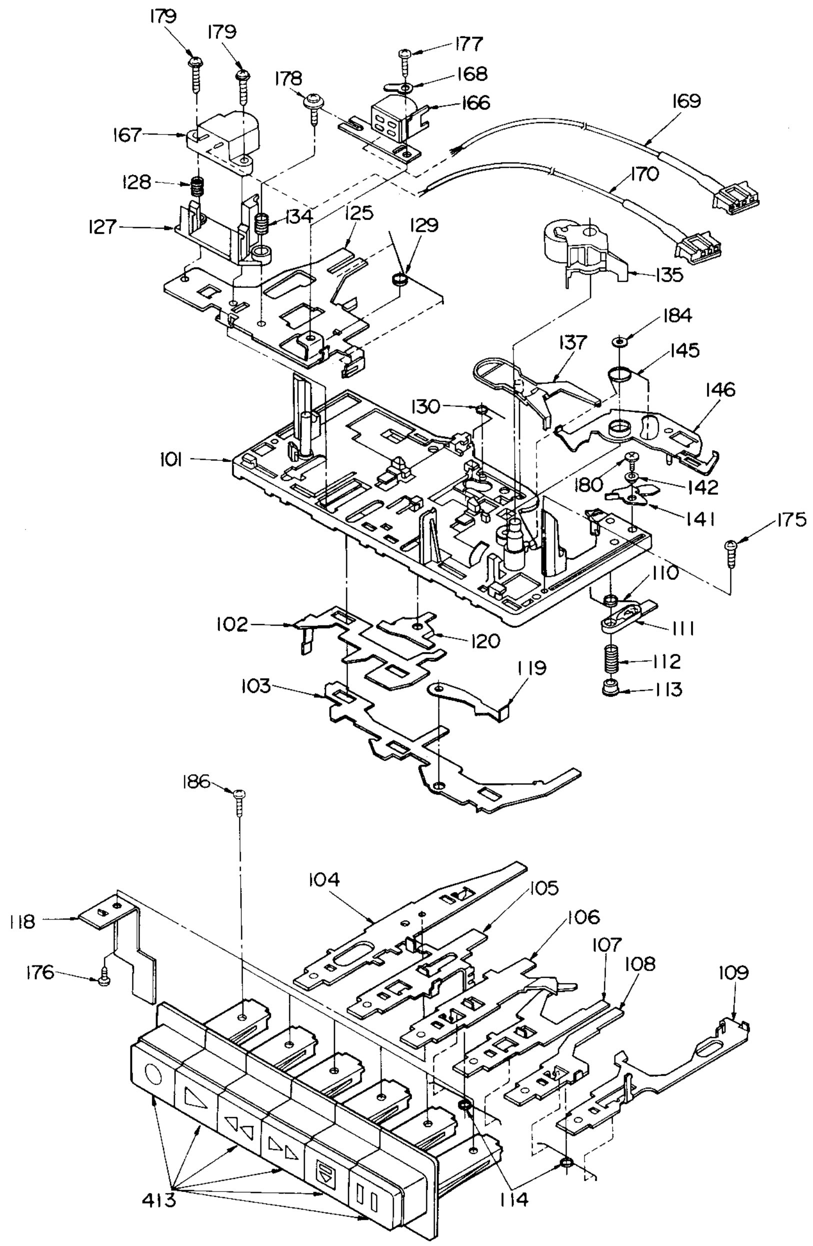
MECHANISM PARTS LOCATION (DECK [2])

[See parts list on page 59, 60.]

1 2 3 4 5 6 7 8 9

A B C D E F

(UPPER VIEW)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180
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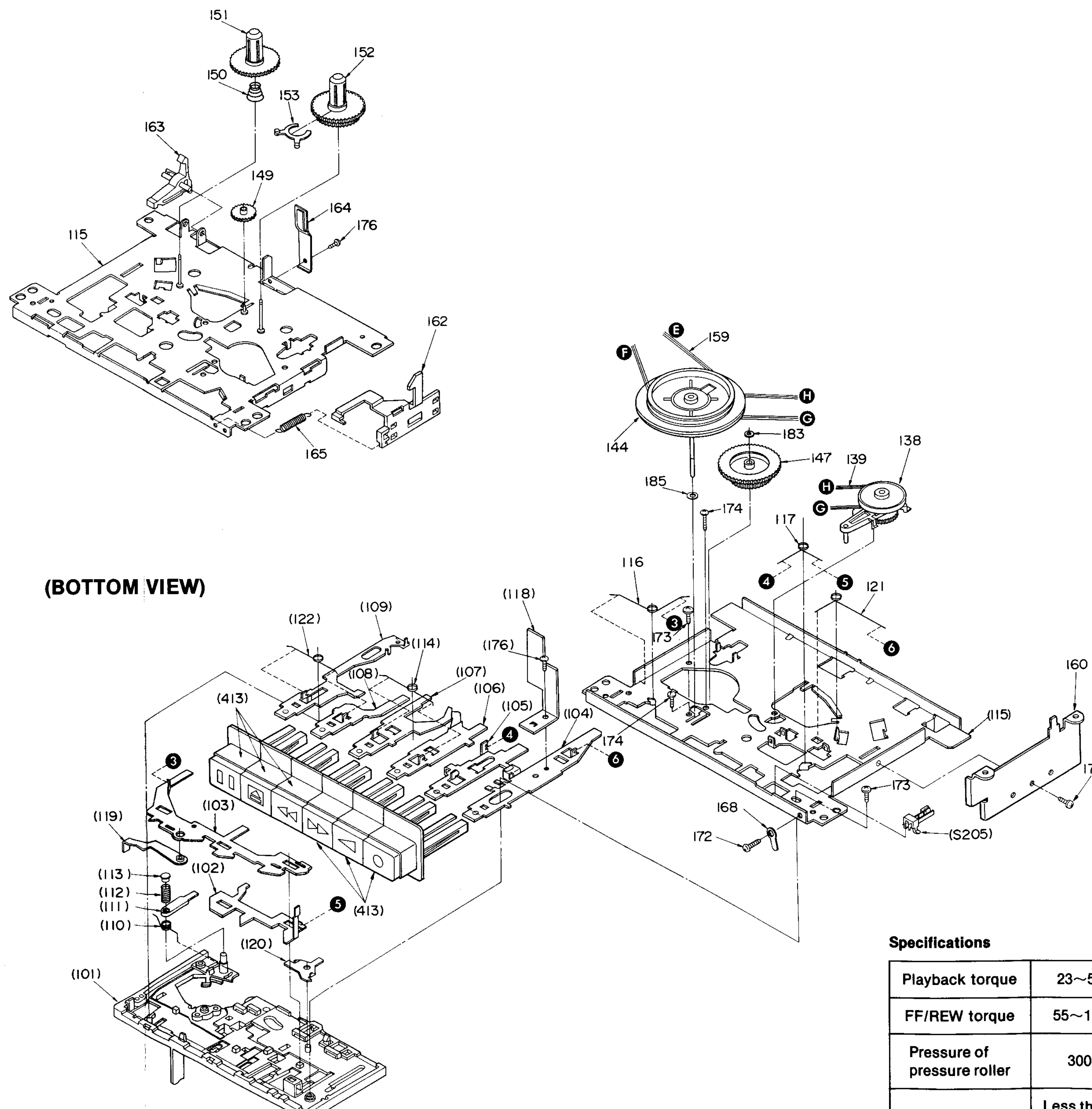
413
114

(UPPER VIEW)


151
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Ⓔ
159
Ⓕ
Ⓗ
Ⓖ
183
144
147
139
138
185
174
117
116
❹
❺
121
❻
❸
173
(122)
(109)
(114)
(118)
(176)
(108)
(107)
(106)
(105)
(104)
(413)
❹
174
❻
160
(115)
172
173
168
172
(S205)
❸
(119)
(103)
(113)
(112)
(111)
(110)
(102)
❺
(413)
(120)
(101)

(BOTTOM VIEW)

Specifications

Playback torque	23～55g·cm
FF/REW torque	55～130g·cm
Pressure of pressure roller	300±50g
Wow and flutter	Less than 0.22% (WRMS)

Mechanical Full Auto-Stop

REPLACEMENT PARTS LIST

• ELECTRICAL PARTS LIST

Notes : ∗ Important safety notice :
Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.
∗ Bracketed indications in Ref. No. columns specify the area. (Refer to the first page for area.)
Parts without these indications can be used for all areas.
∗ M Indicates parts that are supplied by **MESA.**

Ref. No.	Part No.	Description
INTEGRATED CIRCUITS		
IC1	AN7205	I.C. FRONT END
IC2	BA4236L	I.C. FM/IF AMP, ETC.
IC3	RVIBA1332L	I.C. FM MPX
IC101	BA3416BL	I.C. HEAD AMP
IC102	BA3310N	I.C. REC AMP
IC148	CXA1102P	I.C. DOLBY NR
IC149	MN4066B	I.C. SWITCH
IC301	MN4066B	I.C. SWITCH
IC302	MN74HC73	I.C. FLIP FLOP
IC303	AN6887RA	I.C. LED DRIVER
IC304	AN7133	I.C. POWER
IC701	AN8373S	I.C. CD SERVO
IC702	AN8374S	I.C. PWM DRIVE/PLL
IC703	AN8377	I.C. MOTOR DRIVE
IC704	MN6617	I.C. SIGNAL PROCESS
IC705	LC3517BML	I.C. RAM
IC706	RA8410P	I.C. MOTOR DRIVE
IC707	SM5807ES-T	I.C. DIGITAL FILTER
IC708	LC7881M	I.C. D/A CONVERTER
IC709	NJM2100D	I.C. AUDIO AMP
IC801	MN178611RRK2	I.C. SYSTEM CONT.
TRANSISTORS		
Q1	2SC3313B	TRANSISTOR
Q101	2SD1330	TRANSISTOR
Q102	RVTDTC114YST	TRANSISTOR
Q143	RVTDTC144EST	TRANSISTOR
Q144	2SC3311S	TRANSISTOR
Q145	2SC3311S	TRANSISTOR
Q146	2SC1740SLNS	TRANSISTOR
Q147	2SC3311S	TRANSISTOR
Q148	RVTDTC144TST	TRANSISTOR
Q149	2SC3311S	TRANSISTOR
Q151	RVTDTA114YST	TRANSISTOR
Q152	RVTDTC114YST	TRANSISTOR
Q153	2SC3311S	TRANSISTOR
Q154	RVTDTC114YST	TRANSISTOR
Q156	2SC3311AR	TRANSISTOR
Q157	2SC2001K2TA	TRANSISTOR
Q158	RVTDTC114YST	TRANSISTOR
Q159	RVTDTC114YST	TRANSISTOR
Q160	RVTDTA114YST	TRANSISTOR
Q161	RVTDTA114YST	TRANSISTOR
Q165	RVTDTA114YST	TRANSISTOR
Q166	2SK381B	TRANSISTOR
Q167	RVTDTC114YST	TRANSISTOR
Q169	RVTDTC114YST	TRANSISTOR
Q170	2SC3311S	TRANSISTOR
Q201	2SD1330	TRANSISTOR
Q202	RVTDTC114YST	TRANSISTOR
Q243	RVTDTC144EST	TRANSISTOR
Q244	2SC3311S	TRANSISTOR
Q245	2SC3311S	TRANSISTOR
Q246	2SC1740SLNS	TRANSISTOR
Q247	2SC3311S	TRANSISTOR
Q248	RVTDTC144TST	TRANSISTOR
Q249	2SC3311S	TRANSISTOR
Q251	RVTDTC144TST	TRANSISTOR
Q252	RVTDTC114YST	TRANSISTOR
Q253	2SC3311S	TRANSISTOR
Q255	RVTDTC144EST	TRANSISTOR
Q256	2SC3311AR	TRANSISTOR
Q257	RVTDTC114YST	TRANSISTOR
Q258	RVTDTC114YST	TRANSISTOR
Q259	2SA886-Q	TRANSISTOR
Q260	2SC3311S	TRANSISTOR
Q301	2SC3312S	TRANSISTOR
Q302	2SC3312S	TRANSISTOR
Q303	2SC3311S	TRANSISTOR
Q304	2SC3311S	TRANSISTOR
Q340	RVTDTA114TS	TRANSISTOR
Q341	RVTDTC144EST	TRANSISTOR
Q342	RVTDTC144EST	TRANSISTOR
Q343	RVTDTC144EST	TRANSISTOR
Q344	2SD592NCR	TRANSISTOR
Q351	RVTDTC144EST	TRANSISTOR
Q352	RVTDTC114EST	TRANSISTOR
Q353	RVTDTC114YST	TRANSISTOR
Q354	RVTDTC114YST	TRANSISTOR
Q355	2SB942P	TRANSISTOR
Q356	2SC3311S	TRANSISTOR
Q359	RVTDTC144EST	TRANSISTOR
Q360	2SC3312S	TRANSISTOR
Q361	2SC3312S	TRANSISTOR
Q364	RVTDTA114YST	TRANSISTOR
Q367	RVTDTC144EST	TRANSISTOR
Q368	2SC1846R	TRANSISTOR
Q401	2SC3312S	TRANSISTOR
Q402	2SC3312S	TRANSISTOR
Q403	2SC3311S	TRANSISTOR
Q404	2SC3311S	TRANSISTOR
Q501	2SB621ARTA	TRANSISTOR
Q502	2SC3311AR	TRANSISTOR
Q503	2SC3311S	TRANSISTOR
Q701	2SA1309R	TRANSISTOR
Q702	2SB621R	TRANSISTOR
Q703	UN4110-R	TRANSISTOR
Q704	UN4216-S	TRANSISTOR
Q705	UN4216-S	TRANSISTOR
Q801	UN4110-R	TRANSISTOR
Q802	UN4213	TRANSISTOR
DIODES		
D1	MA165	DIODE
D2	MA165	DIODE
D3	MA165	DIODE
D148	MA165	DIODE
D149	MA165	DIODE
D152	MA165	DIODE
D153	MA165	DIODE
D154	MA165	DIODE
D155	MA165	DIODE
D156	MA165	DIODE
D157	MA165	DIODE
D158	MA165	DIODE
D248	MA165	DIODE
D249	MA165	DIODE
D251	MA165	DIODE
D252	RVDUTZ15B	DIODE
D253	MA165	DIODE
D254	MA165	DIODE
D255	RVDMTZ5R1B	DIODE
D341	MA165	DIODE
D343	MA165	DIODE
D344	MA165	DIODE
D353	MA165	DIODE
D356	MA165	DIODE
D357	MA165	DIODE
D358	MA165	DIODE
D359	MA165	DIODE
D360	RVDMTZ7R5B	DIODE
D362	MA165	DIODE
D363	MA165	DIODE
D370	MA165	DIODE
D371	MA165	DIODE
D372	MA165	DIODE
D373	RVDMTZ5R1CTA	DIODE, SI
D374	MA165	DIODE
D375	MA165	DIODE
D380	RVDMTZ8R2B	DIODE

Ref. No.	Part No.	Description
D501	RVDP300D	DIODE
D502	RVDP300D	DIODE
D503	RVDP300D	DIODE
D504	RVDP300D	DIODE
D505	RVD1SR35	DIODE
D506	RVD1SR35	DIODE
D511	LN242RPXTA3	DIODE, SI
D512	LN242RPXTA3	DIODE, SI
D513	LN242RPXTA3	DIODE, SI
D514	LN242RPXTA3	DIODE, SI
D515	MA165	DIODE
D516	RVDP300D	DIODE
D701	MA165	DIODE
D703	MA165	DIODE
D704	MA165	DIODE
D707	MA165	DIODE
D708	MA165	DIODE
D801	MA165	DIODE
D802	MA165	DIODE
D803	MA165	DIODE
D804	MA165	DIODE
D805	MA165	DIODE
D806	MA165	DIODE
D807	MA165	DIODE
D808	MA165	DIODE
D809	MA165	DIODE
I.C.PROTECTORS		
IP101 ⚠	AHICPN5TA	I.C.PROTECTOR
IP102 ⚠	RAHICPN20TA	I.C.PROTECTOR
VARIABLE RESISTORS		
VR1	EVNDXAA00B14	V.R, FM VCO
VR101	EVNDXAA00B14	V.R, BIAS CURRENT
VR102	EVNDXAA00B53	V.R, TAPE SPEED
VR147	EVND4AA00B15	V.R, REC/PLAY LEVEL
VR148	EVNDXAA00B14	V.R, PLAY LEVEL(DECK 1)
VR149	EVNDXAA00B14	V.R, PLAY LEVEL(DECK 2)
VR247	EVND4AA00B15	V.R, REC/PLAY LEVEL
VR248	EVNDXAA00B14	V.R, PLAY LEVEL(DECK 1)
VR249	EVNDXAA00B14	V.R, PLAY LEVEL(DECK 2)
VR301	EWAGS2C95G54	V.R, XBS LEVEL CONTROL
VR302	EWAGS2T50G54	V.R, TONE CONTROL
VR303	EWAGF2C95B54	V.R, VOLUME CONTROL
VR701	EVNDXAA00B14	V.R, BEST EYE
VR702	EVNDXAA00B24	V.R, TRACKING BALANCE
VR703	EVNDXAA00B14	V.R, FOCUS OFFSET
VR704	EVNDXAA00B14	V.R, FOCUS GAIN
VR705	EVNDXAA00B14	V.R, TRACKING GAIN
VR706	EVNDXAA00B14	V.R, TRACKING OFFSET
VARIABLE CAPACITORS		
CT3	RCVTZ20F	TRIMMER
CT6	RCVTZ20F	TRIMMER
VC1	RCV4RC2V2K	VARIABLE CAPACITOR
THERMISTORS AND VARISTORS		
TH101	RRT302T-H	THERMISTOR
COILS AND TRANSFOMERS		
L2 (E, EB, EF)	RLD4Y53	COIL, FM OSC
L2 (EG, EI)	RL04N198	COIL, FM OSC
L3	RLF6W152	FERRITE ANTENNA COIL
L6	RL01B13	COIL, LW OSC
L7	RL02B108	COIL, MW OSC
L9	RLQY30S1	COIL
L147	RLQZB822K	COIL
L148	RLE5031	COIL
L149	RLE9B1	COIL
L151	RL08R4-K	COIL, BIAS OSC
L152	RLQZB470K	COIL
L247	RLQZB822K	COIL
L248	RLE5031	COIL
L249	RLE9B1	COIL
T1	RLI4B153	I.F.TRANSFORMER, FM 1ST
T2	RLI2B153	I.F.TRANSFORMER, AM
T3	RLI4B153	I.F.TRANSFORMER, FM 2ND
T501 ⚠ (EB)	RLT5L4A4A-C	POWER TRANSFORMER
T501 ⚠ (E, EG, EF, EI)	RLT5L4G7A-C	POWER TRANSFORMER
COMPONENT COMBINATIONS		
Z1	RXABPMB6A	COMPONENT COMBINATION
FILTERS		
CF1	RVF107WDZ	CERAMIC FILTER, 10.7MHZ
CF2 (E, EG, EF, EI)	RVFSFZ455JZ	CERAMIC FILTER, 455KHZ
CF2 (EB)	RVFSFZ459JL	CERAMIC FILTER, 459KHZ 🄼
OSCILLATORS		
X701	RVCA16934NZW	CRYSTAL
FUSES		
F1 ⚠	XBA2C25TB0U	CURRENT FUSE
SWITCHES		
S1	RST3B31ZA-H	SW, BAND SELECT
S2	RST3H15ZA-H	SW, FM MODE/B.P
S101	RST3F24ZA-Q	SW, FUNCTION SELECT
S102	RST2B53ZA-Q	SW, TAPE SELECT
S103	ESB62771	SW, EDIT SPEED
S149	ESB62771	SW, DOLBY NR
S151	RSH2H04XA-H	SW, REC/PLAY
S201	RFA62Z	SW, FWD/REV(DECK 2)
S202	RFA44Z	SW, FF/REW(DECK 1)
S203	RFA93ZA	SW, PLAY(DECK 1)
S204	RFA92ZA	SW, MOTOR(DECK 1)
S205	RFA85ZA	SW, MOTOR(DECK 2)
S801	EVQQC205K	SW, KEY 1
S802	EVQQC205K	SW, KEY 2
S803	EVQQC205K	SW, KEY 3
S804	EVQQC205K	SW, KEY 4
S805	EVQQC205K	SW, KEY 5
S806	EVQQC205K	SW, KEY 6
S807	EVQQC205K	SW, KEY 7
S808	EVQQC205K	SW, KEY 8
S809	EVQQC205K	SW, KEY 9
S810	EVQQC205K	SW, KEY 0.
S811	EVQQC205K	SW, KEY +10
S812	EVQQC205K	SW, SKIP/SEARCH(FWD)
S813	EVQQC205K	SW, SKIP/SEARCH(REV)
S814	EVQQC205K	SW, PLAY/STOP
S815	EVQQC205K	SW, PAUSE/CLEAR
S816	EVQQC205K	SW, M.S/REM
S817	EVQQC205K	SW, REPEAT
S818	EVQQC205K	SW, PROGRAM ME/RECALL
S819	EVQQC205K	SW, ATLS
S820	RSH1A64Z	SW, CLOSE
S821	RSH1A64Z	SW, LASER
S822	SSHD4E	SW, REST
OTHERS		
J1, 2 ⚠ (E, EG, EF, EI)	RJJ1F2ZC-H	JACK, AC/DC IN(W/S301)
J1, 2 ⚠ (EB)	RJJ1F3Z	JACK, AC/DC IN(W/S301)
J101	RJJD7S2Z	JACK, HEADPHONES
J102	RJJD3M6Z	JACK, EXT MIC
J103	RJF1099Z	JACK, CD OUT

• MECHANISM PARTS LIST

Note: ＊See illustration on page 51～56.

Ref. No.	Part No.	Description
MECHANISM		
CASSETTE DECK		
101	RFU154ZA	CHASSIS ASS'Y
102	RFY866ZA	SWITCH ACTUATOR
103	RFY867ZA	BUTTON ACTUATOR
104	RFY896ZA	LEVER, REC
105	RFY900ZA	LEVER, PLAY
106	RFY897ZA	LEVER, REW
107	RFY898ZA	LEVER, FF
108	RFY899ZA	LEVER, STOP/EJECT
109	RFY901ZA	LEVER, PAUSE
110	RFS812ZA	SPRING, P.CONTROL
111	RFG135ZA	PAUSE LEVER
112	RFS813ZA	SPRING, PAUSE LEVER
113	RFX174ZA	PAUSE STOPPER
114	RFS814ZA	SPRING(A), LEVER
115	RFU155ZA	CHASSIS ASS'Y
116	RFS815ZA	SPRING, E.ACTUATOR
117	RFS816ZA	SPRING, P.S. LEVER
118	RFS836ZA	SPRING, REC
119	RFY844ZA	E KICK LEVER
120	RFX175ZA	PR STOPPER
121	RFS835ZA	SPRING, REC LEVER
125	RFU166ZA	CHASSIS, HEAD
127	RFU167ZA	HEAD BASE
128	RFS578Z	SPRING, E.H
129	RFS819ZA	SPRING, PANEL P.
130	RFS820ZA	SPRING, M.CONTROL
134	RFS447Z	SPRING, AZIMUTH
135	RFR57ZA	PINCH ROLLER ASS'Y
137	RFY884ZA	SENSING LEVER
138	RFQ61ZA	RF CLUTCH ASS'Y
139	RFB99ZA	BELT, RF
141	RFD396ZA	P ARM
142	RFY877ZA	P ARM COLLAR
144	RFF69ZA	FLYWHEEL ASS'Y
145	RFS822ZA	SPRING, GEAR PLATE
146	RFY874ZA	GEAR PLATE ASS'Y
147	RFG136ZA	CAM GEAR
149	RFG110ZA	FF GEAR
150	RFS707ZA	SPRING, B.T
151	RFJ85ZA	REEL TABLE ASS'Y(SUPPLY)
152	RFJ86ZA	REEL TABLE ASS'Y(TAKE UP)
153	RFY875ZA	SENSER
155	RFD398ZA	MOTOR BRACKET ASS'Y
156	RFI38Z	RUBBER, MOTOR
157	RFE213Z	SCREW
159	RFB91ZA	BELT, MAIN
160	RFD399ZA	ANGLE, MECHANISM
162	RFY889ZA	LEVER, EJECT SLIDE
163	RFY716Z	REC SAFETY LEVER
164	RFS534Z	SPRING, PACK
165	RFS826ZA	SPRING, EJECT
166	RJH4C34GUAM	REC/PLAY HEAD
167	RJH7E3Z	ERASE HEAD
168	RFE228Z	LUG TERMINAL
169	RZZ0414	SHIELD WIRE
170	RZZ0417	SHIELD WIRE
172	RFE425ZA	SCREW
173	RFE416ZA	SCREW
174	RFE496ZA	SCREW
175	RFE252Z	SCREW
176	RFE472ZA	SCREW
177	RFE498ZA	SCREW
178	RFE230Z	SCREW
179	RFE241Z	SCREW
180	RFE497ZA	SCREW
183	RFN83Z	WASHER
184	RFN214ZA	WASHER
185	RFN122Z	WASHER
186	RHE5112Z	SCREW
301	RFU164ZA	CHASSIS ASS'Y
302	RFY420Z	LEVER, PAUSE
303	RFS459Z	SPRING, PAUSE LEVER
304	RFS534Z	SPRING, PACK
308	RFX163ZA	COLLAR, H.P
309	RFY813ZA	RELEASE PLATE
310	RFS736ZA	SPRING, R.C PLATE
311	RFS833ZA	SPRING, R.C
312	RFY817ZA	HEAD PANEL
313	RFY818ZA	R.C PLATE
314	RFE417ZA	GUIDE, TAPE
316	RFD334ZA	ANGLE, SWITCH
319	RFS737ZA	SPRING, HEAD
323	RFS751ZA	SPRING, PINCH ROLLER(FWD)
324	RFS752ZA	SPRING, PINCH ROLLER(REV)
327	1JH0027ZA	PLAY HEAD 🄼
330	RFF68ZA	FLYWHEEL ASS'Y
332	RFE239Z	SCREW
333	RFB90ZA	MAIN BELT
334	RFY800ZA	LEVER, EJECT SLIDE
335	RFS726ZA	SPRING, SLIDE LEVER
337	RFY812ZA	BUTTON LEVER ASS'Y
338	RFY857ZA	MODE BUTTON LEVER
339	RFY808ZA	LEVER, PLAY
340	RFY809ZA	LEVER, FF(FWD)
341	RFY810ZA	LEVER, FF(REV)
342	RFY811ZA	LEVER, STOP/EJECT
343	RFS834ZA	SPRING, LEVER
344	RFS732ZA	SPRING, FF LEVER
345	RFS733ZA	SPRING, PULL ARM
349	RFY805ZA	LOCK ACTUATOR ASS'Y
350	RFY804ZA	SLIDE PLATE
351	RFS730ZA	SPRING, LOCK RELEASE
352	RFS748ZA	SPRING, SW ACTUATOR
353	RFU130ZA	BUTTON BASE ASS'Y
354	RFS734ZA	SPRING, STOP/EJECT LEVER
356	RFS750ZA	SPRING, LEVER
357	RFY806ZA	SW ACTUATOR ASS'Y
358	RFS747ZA	SPRING, LOCK ACTUATOR
360	RFY822ZA	PLATE, BRAKE
361	RFS743ZA	SPRING, BRAKE
363	RFU131ZA	REEL PLATE ASS'Y
364	RFJ87ZA	REEL TABLE
365	RFU129ZA	SUB CHASSIS ASS'Y
366	RFY823ZA	ARM, R.C
367	RFY815ZA	ARM, AUTO CONTROL(FWD)
368	RFY816ZA	ARM, AUTO CONTROL(REV)
369	RFX162ZA	COLLAR
372	RFY798ZA	LEVER, AUTO(FWD)
373	RFS724ZA	SPRING, AUTO(REV)
374	RFX161ZA	STOPPER
375	RFY799ZA	LEVER, AUTO(REV)
376	RFS725ZA	SPRING, AUTO(FWD)
378	RFY801ZA	ARM, TURN OVER
379	RFS727ZA	SPRING, TURN OVER
380	RFY814ZA	PLATE, FF SWITCH
382	RFY802ZA	T.GEAR ARM (F) ASS'Y
383	RFS728ZA	SPRING, GEAR ARM(F)
384	RFG111ZA	GEAR, T.CAM(F)
385	RFY803ZA	T.GEAR ARM (R) ASS'Y
386	RFS729ZA	SPRING, GEAR ARM(R)
387	RFG112ZA	GEAR, T.CAM(R)
388	RFY819ZA	FF GEAR ARM (F) ASS'Y
389	RFG113ZA	GEAR, FF
390	RFS740ZA	SPRING, FF GEAR(F)
391	RFX164ZA	COLLAR
392	RFY820ZA	FF GEAR ARM (R) ASS'Y
394	RFR46ZA	PINCH ROLLER (F) ASS'Y

Ref. No.	Part No.	Description
395	RFR47ZA	PINCH ROLLER (R) ASS'Y
399	RFE418ZA	SCREW
401	RFY582Z	P KICK LEVER(B)
402	RFY821ZA	P KICK LEVER (A)
404	RFE419ZA	SCREW
405	RFS741ZA	SPRING, P KICK
410	FI50ZA	CUSHION
411	RFI57ZA	RUBBER SPACER
412	RFM151ZA	DC MOTOR
413	RBC9144ZB-0	BUTTON, MECHA
414	RZZ0416	SHIELD WIRE
415	RFE420ZA	SCREW
417	RFE222Z	SCREW
418	RFE426ZA	SCREW
419	RFN134Z	WASHER
421	RFE423ZA	SCREW
423	RFN122Z	WASHER
424	RFN136Z	WASHER
425	RFN182ZA	WASHER
426	RFN133Z	WASHER
427	RFN139Z	WASHER
428	RFN183ZA	WASHER
429	RFE503ZA	SCREW
430	RFE428ZA	SCREW
431	RFE473ZA	SCREW
432	RFN216ZA	WASHER
434	RFE425ZA	SCREW
436	RFE422ZA	SCREW
437	RFE431ZA	SCREW
438	RFE421ZA	SCREW
439	RHE5112Z	SCREW

• CD PLAYER (TRAVERSE) PARTS LIST

Notes: * Important safety notice:
Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.
* See illustration on page 48.

Ref. No.	Part No.	Description
TRAVERSE DECK		
TRAVERSE DECK		
300	SDGD25	RACK
301	SHRD24	ROLLER
302	SNSD4	SCREW
303	SNWD1	WAVE WASHER
304	SUWD27	PLATE A
305	SUWD28	PLATE B
306	SUXD26	SHAFT A
307	SUXD27	SHAFT B
308 ⚠	S0AD46A	OPTICAL PICK UP
309	SDGD60A	GEAR ASS'Y
309A	SDGD60E	MOTOR ASS'Y
309B	SDGD22	GEAR A
309C	SDGD23	GEAR B
309D	SDGD24	GEAR
309F	SHWD1	SNAP WASHER
309G	SUSD41	SPRING
309H	SUWD29	BRACKET
309I	SUW0DD46Z-J	SPRING
309J	XQN2+A15FN	SCREW
309K	XQN2+A2	SCREW
310	SHGD112	RUBBER A
311	SHGD113-1	RUBBER B
312	SIRD21-1	TRAVERSE BASE
313	SIRD47E-1	PLATE
314	SJGDRF310T1	MOTOR
315	SUSD35-1	SPRING
316	XQN2+C35	SCREW
317	XTN2+E8JFN	SCREW
318	XTS2+A6JFZ	SCREW
320	RHM277ZA	BRACKET
321	RUW183ZA	SPRING
323	SWKDXP5027	CONNECTOR(2P)
324	SWKDXP5028	CONNECTOR(2P)
325	SWKDXP5029	CONNECTOR(2P)

• PACKING MATERIAL AND ACCESSORIES PARTS LIST

Notes : * Important safety notice :
Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.
* Bracketed indications in Ref. No. columns specify the area. (Refer to the first page for area.)
Parts without these indications can be used for all areas.
* See illustration on page 47.

Ref. No.	Part No.	Description
PACKING MATERIAL		
P1	RPK2749ZA	GIFT BOX
P2	RPN9578ZC	PAD COMPLETE
P3	RPH645YA	PACKING SHEET
P4	RPE757ZA	SPACER
P5	RPE758ZA	SPACER
ACCESSORIES		
A1 ⚠ (E, EG, EF, EI)	RJA20Z	POWER CORD
A1 ⚠ (EB)	RJA86Z	POWER CORD
A2	RQX5166ZA	INST. MANUAL

• CABINET AND CHASSIS PARTS LIST

Notes : * Important safety notice :
Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.
* Bracketed indications in Ref. No. columns specify the area. (Refer to the first page for area.)
Parts without these indications can be used for all areas.
* See illustration on page 49, 50.

Ref. No.	Part No.	Description
CABINET AND CHASSIS		
1	RJS4L3Z	SOCKET(4P)
2	RJP6G20Z	PLUG(6P)
3	RJS3L3Z	SOCKET(3P)
4	RJT707Z	TERMINAL
5	RMY257ZA	HEAT SINK
6	RMY258ZA	HEAT SINK
7	XTW3+8L	SCREW
8 ⚠	RJF28Z	FUSE HOLDER
9	RJS6L15Z	SOCKET(6P)
10	RJS6L16Z	SOCKET(6P)
11	RHR2095YA	SPACER
12	RJP4G4Y	PLUG(4P)
13	RJP6G18ZA	PLUG (6P)
14	RJP7G34ZA-D	PLUG (7P)
15	RJP8G18Z	PLUG(8P)
16	RJS2T4ZA	SOCKET (2P)
17	RJS7T5ZA	SOCKET(7P)
18	RUP2469YAN-1	P.C.B, CONNECTOR
19	RBC9143YA-0	LED HOLDER BLOCK
20	RDG5904ZB	GEAR, VC
21	XYN26+C6	SCREW
23	RME9036ZA	HOLDER, DISPLAY
24	RJS2L4Z	SOCKET(2P)
25	RJS6L4Z	SOCKET (6P)
26	RJT807ZB-X	TERMINAL
27	RJS3L4Z	SOCKET(3P)
28	RJS4L4Z	SOCKET (4P)
29	RJS5L4Z	SOCKET(5P)
31	RJS6L13ZA-X	SOCKET (6P)
32	RJS6L17ZA-X	SOCKET (6P)
33	RJS8L13Z	SOCKET(8P)
34	RJS8L17Z	SOCKET(8P)
35	XSN26+5	SCREW
36	XSN26+6	SCREW
37	RJP2G18Z	PLUG (2P)
38	RJP5G35ZA	PLUG (5P)
39	RJS10T7ZA	SOCKET (10P)
40	RJS12T7ZA	SOCKET (12P)
41	RJS16Q11ZA	SOCKET (16P)
42	RJS6T7ZA	SOCKET (6P)
43	RUA849ZA	CHASSIS, CD
44	RUD117ZA	SPRING
45	RUA850ZA-0	CHASSIS, DIAL
46	RDG5934ZA	GEAR
47	RDG5945ZA	GEAR
48	XTV3+12G	SCREW
49	RDP351ZA-0	POINTER, DIAL
50	RZFXDT50E	TUNING SHAFT ASS'Y
51	RUW196ZA	SPRING, EJECT
52	RDG5782Z	GEAR, DUMPER
53	RUW197ZA	SPRING
54	XTV2+6G	SCREW
55	RGP1221YA-0	CD PANEL
56	RAS10P30ZA-H	SPEAKER
57	RUB556ZB	LEVER, CD EJECT
58	XTN3+10B	SCREW
59	RYQ1XDT50J	CASSETTE LID (1) ASS'Y
60	RYQ2XDT50J	CASSETTE LID (2) ASS'Y
61	RYQ3XDT50J	CD COVER ASS'Y
61A	RME485ZB	CLAMPER
61B	RHM245ZA	MAGNET
61C	RYGXDT50J	CD HOLDER
61D	RME492ZA	WASHER
62 (EB)	RYMXDT50EB7	FRONT CABINET ASS'Y
62 (EG, EI)	RYMXDT50EG7	FRONT CABINET ASS'Y
62 (E, EF)	RYMXDT50E7	FRONT CABINET ASS'Y
63	XTC3+10CFZ	SCREW
64	RNW622ZA	WASHER
65	RKX390WA-0	ARM-R, HANDLE
66	RKX390XA-0	ARM-L, HANDLE
67	RKX391YA-0	HANDLE
68	XEARR225DAY	TELESCOPIC ANTENNA
69	XYN3+F16FY	SCREW
70 (EB)	RYFXDT50EB7	REAR CABINET ASS'Y
70 (EG)	RYFXDT50EG7	REAR CABINET ASS'Y
70 (EI)	RYFXDT50EI7	REAR CABINET ASS'Y
70 (E, EF)	RYFXDT50E7	REAR CABINET ASS'Y
70A	RJC10001ZA	BATTERY TERMINAL (+)
70B	RJC50005ZA	BATTERY TERMINAL (-)
70C	RJC931Z	BATTERY TERMINAL (+/-)
70D (EI)	RGT1380WA-0	NAME PLATE
70D (EG)	RGT1380XA-0	NAME PLATE
70D (EB)	RGT1380YA-0	NAME PLATE
70D (E, EF)	RGT1380ZA-0	NAME PLATE
71	RYPXDT50E	TOP PANEL ASS'Y
72	RUL1102ZA	ANGLE, SLID VOLUME
73	XTV3+50G	SCREW
74	XTV3+60G	SCREW
75	RHE5157YA	SCREW
76	RKK317ZA-91	BATTERY COVER
77	RBC1309ZA-0	BUTTON, EDIT/DOLBY
78	RBD531YA-0	KNOB, BAND/FM MODE/B.P
80	RBD543ZA-0	KNOB, XBS/VOLUME
81	RBD544ZA-0	KNOB, TONE
82	RBD546ZA-0	KNOB, SELECTOR/TAPE SEL.
83	RYTXDT50J	KNOB, TUNING ASS'Y
85	RJP2G17ZA	PLUG(2P)
86	RJS7M9ZA-D	SOCKET (7P)
89	LDB9282AZ	DISPLAY
90	RJP3G18Z	PLUG(3P)
91	RJP4G18ZA	PLUG(4P)
92	RJP5G18Z	PLUG(5P)
93	RJP6G17ZA	PLUG (6P)
94	XWA26B	WASHER
95	RBC1346ZA-0	BUTTON, CD EJECT
96	XWG3	WASHER
98	WBB5GB-15KM	FLAT CABLE (5P)
99	WBB7CB-7KM	FLAT CABLE (7P)
100	WBB10JS-22KM	FLAT CABLE (10P)
101	WBB12JS-22KM	FLAT CABLE (12P)
102	RHR3384ZA	SPACER
104	RHR2214ZA	SPACER
105	RHR2215ZA	WASHER
106	RJP3G4Y	PLUG (3P)

■ RESISTORS & CAPACITORS

Notes : * Important safety notice :
Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.
* Bracketed indications in Ref. No. columns specify the area. (Refer to the first page for area.)
Parts without these indications can be used for all areas.

Numbering System For Resistors

Example:

ERD	25	F	J	102
Type	Wattage (1/4W)	Shape	Tolerance	Value (1KΩ)
ERX	2	AN	J	471
Type	Wattage (2W)	Shape	Tolerance	Value (470Ω)

Numbering System For Capacitors

Example:

ECKD	1H	102	Z	F
Type	Voltage (50V)	Value (0.001μF)	Tolerance	Unique
ECEA	50	M		330
Type	Voltage (50V)	Characteristics		Value (33μF)

- Capacity values are in microfarads (μF) unless specified otherwise, P=Pico-farads (pF) F=Farads (F).
- Resistance values are in ohms (Ω), unless specified otherwise, 1K=1,000Ω, 1M=1,000kΩ

Resistor Type		Wattage		Tolerance
ERD	: Carbon	10 : 1/8W	12 : 1/2W	J : ±5%
ERG	: Metal Oxide	14 : 1/4W	25 : 1/4W	F : ±1%
ERQ	: Fuse Type Metal	1A : 1W	18 : 1/8W	G : ±2%
ERX	: Metal Film	S2 : 1/4W	S1 : 1/2W	J : ±5%
ERD L	: Carbon (chip)	2F : 1/4W	50 : 1/2W	K : ±10%
ERO K	: Metal Film (chip)	2A : 2W	3A : 3W	M : ±20%
ERC	: Solid	6G : 1/10W	8G : 1/8W	
ERF	: Incombustible Box-Shaped			
ERM	: Wire-Wound			
RRJ	: Chip Resistor			
ERJ	: Chip Resistor			

Capacitor Type		Voltage		Tolerance
ECE	: Electrolytic	0J : 6.3V	1A : 10V	K : ±10%
ECCD	: Ceramic	1C : 16V	1E : 25V	M : ±20%
ECKD	: Ceramic Capacitor	1H : 50V	1V : 35V	Z : +80 −20 %
ECQM	: Polyester	50 : 50V	05 : 50V	
ECQP	: Polypropylene	2H : 500V	2A : 100V	J : ±5%
ECG	: Ceramic	1 : 100V	1J : 63V	G : ±2%
ECEA N	: Non Polar Electrolytic	KC : 400V AC		F : ±1%
QCU	: Ceramic (Chip Type)	KC : 125V AC (UL)		C : ±0.25pF
ECUX	: Ceramic (Chip Type)			D : ±0.5pF
ECF	: Semiconductor			
EECW	: Liquid electrolyte double layer capacitor			

Ref. No.	Part No.	Value.
RESISTORS(VALUE,WATTAGE)		
R1	ERDS2TJ101	100 1/4
R2	ERDS2TJ101	100 1/4
R3	ERDS2TJ8R2	8.2 1/4
R6	ERDS2TJ824	820K 1/4
R7	ERDS2TJ331	330 1/4
R8	ERDS2TJ221	220 1/4
R12	ERDS2TJ470	47 1/4
R13	ERDS2TJ470	47 1/4
R16	ERDS2TJ392	3.9K 1/4
R17	ERDS2TJ222	2.2K 1/4
(E, EB, EG, EI)		
R17	ERDS2TJ822	8.2K 1/4
(EF)		
R20	ERDS2TJ470	47 1/4
R21	ERDS2TJ472	4.7K 1/4
R22	ERDS2TJ561	560 1/4
R23	ERDS2TJ821	820 1/4
R24	ERDS2TJ104	100K 1/4
R25	ERDS2TJ822	8.2K 1/4
R26	ERDS2TJ562	5.6K 1/4
R27	ERDS2TJ562	5.6K 1/4
R28	ERDS2TJ102	1K 1/4
R30	ERDS2TJ470	47 1/4
R32	ERDS2TJ101	100 1/4
R101	ERDS2TJ330	33 1/4
R102	ERDS2TJ472	4.7K 1/4
R103	ERDS2TJ104	100K 1/4
R104	ERDS2TJ222	2.2K 1/4
R105	ERDS2TJ182	1.8K 1/4
R106	ERDS2TJ820T	82 1/4
R107	ERDS2TJ102	1K 1/4
R109	ERDS2TJ222	2.2K 1/4
R112	ERDS2TJ121	120 1/4
R115	ERDS2TJ153	15K 1/4
R116	ERDS2TJ102	1K 1/4
R117	ERDS2TJ102	1K 1/4
R118	ERDS2TJ100	10 1/4
R136	ERDS2TJ272	2.7K 1/4
R137	ERDS2TJ473	47K 1/4
R138	ERDS2TJ332	3.3K 1/4
R139	ERDS2TJ333	33K 1/4
R140	ERDS2TJ183	18K 1/4
R141	ERDS2TJ682	6.8K 1/4
R142	ERDS2TJ472	4.7K 1/4
R143	ERDS2TJ222	2.2K 1/4
R144	ERDS2TJ102	1K 1/4
R145	ERDS2TJ471	470 1/4
R146	ERDS2TJ105	1M 1/4
R147	ERDS2TJ104	100K 1/4
R148	ERDS2TJ182	1.8K 1/4
R151	ERDS2TJ471	470 1/4
R152	ERDS2TJ223	22K 1/4
R153	ERDS2TJ104	100K 1/4
R154	ERDS2TJ103	10K 1/4
R155	ERDS2TJ103	10K 1/4
R156	ERDS2TJ103	10K 1/4
R157	ERDS2TJ103	10K 1/4
R158	ERDS2TJ224	220K 1/4
R159	ERDS2TJ681	680 1/4
R160	ERDS2TJ103	10K 1/4
R161	ERDS2TJ221	220 1/4
R162	ERDS2TJ101	100 1/4
R163	ERDS2TJ562	5.6K 1/4
R164	ERD25FVJ3R3T	3.3 1/4
R165	ERDS2TJ562	5.6K 1/4
R166	ERDS2TJ102	1K 1/4
R170	ERDS2TJ102	1K 1/4
R171	ERDS2TJ153	15K 1/4
R172	ERDS2TJ103	10K 1/4
R173	ERDS2TJ153	15K 1/4
R174	ERDS2TJ105	1M 1/4
R175	ERDS2TJ472	4.7K 1/4
R176	ERDS2TJ102	1K 1/4
R177	ERDS2TJ102	1K 1/4
R178	ERDS2TJ102	1K 1/4
R179	ERDS2TJ822	8.2K 1/4
R180	ERDS2TJ103	10K 1/4
R181	ERDS2TJ223	22K 1/4
R183	ERDS2TJ104	100K 1/4
R190	ERDS2TJ103	10K 1/4
R191	ERDS2TJ100	10 1/4
R201	ERDS2TJ330	33 1/4
R202	ERDS2TJ472	4.7K 1/4
R203	ERDS2TJ104	100K 1/4
R204	ERDS2TJ222	2.2K 1/4
R205	ERDS2TJ182	1.8K 1/4
R206	ERDS2TJ820T	82 1/4
R207	ERDS2TJ102	1K 1/4
R209	ERDS2TJ222	2.2K 1/4
R212	ERDS2TJ121	120 1/4
R215	ERDS2TJ153	15K 1/4
R236	ERDS2TJ272	2.7K 1/4
R237	ERDS2TJ473	47K 1/4
R238	ERDS2TJ332	3.3K 1/4
R239	ERDS2TJ333	33K 1/4
R240	ERDS2TJ183	18K 1/4
R241	ERDS2TJ682	6.8K 1/4
R242	ERDS2TJ472	4.7K 1/4
R243	ERDS2TJ222	2.2K 1/4
R244	ERDS2TJ102	1K 1/4
R245	ERDS2TJ471	470 1/4
R246	ERDS2TJ105	1M 1/4
R247	ERDS2TJ104	100K 1/4
R248	ERDS2TJ182	1.8K 1/4
R251	ERDS2TJ682	6.8K 1/4
R252	ERDS2TJ332	3.3K 1/4
R254	ERD25VJ106T	10M 1/4
R255	ERDS2TJ433T	43K 1/4
R256	ERDS2TJ222	2.2K 1/4
R257	ERDS2TJ103	10K 1/4
R258	ERDS2TJ333	33K 1/4
R260	ERDS2TJ102	1K 1/4
R263	ERDS2TJ472	4.7K 1/4
R265	ERDS2TJ473	47K 1/4
R266	ERDS2TJ472	4.7K 1/4
R267	ERDS2TJ472	4.7K 1/4
R268	ERDS2TJ331	330 1/4
R269	ERDS2TJ331	330 1/4
R270	ERDS2TJ473	47K 1/4
R271	ERDS2TJ222	2.2K 1/4
R272	ERDS2TJ471	470 1/4
R301	ERDS2TJ223	22K 1/4
(E, EB, EG, EI)		

Ref. No.	Part No.	Value.
R301	ERDS2TJ563	56K 1/4
(EF)		
R302	ERDS2TJ223	22K 1/4
R303	ERDS2TJ273	27K 1/4
R304	ERDS2TJ103	10K 1/4
R305	ERDS2TJ223	22K 1/4
R307	ERDS2TJ272	2.7K 1/4
R308	ERDS2TJ273	27K 1/4
R310	ERDS2TJ223	22K 1/4
R311	ERDS2TJ223	22K 1/4
R312	ERDS2TJ183	18K 1/4
R313	ERDS2TJ472	4.7K 1/4
R314	ERDS2TJ474	470K 1/4
R315	ERDS2TJ392	3.9K 1/4
R316	ERDS2TJ101	100 1/4
R317	ERDS2TJ221	220 1/4
R318	ERDS2TJ682	6.8K 1/4
R322	ERDS2TJ472	4.7K 1/4
R324	ERDS2TJ2R2	2.2 1/4
R325	ERDS2TJ151	150 1/4
R326	ERDS2TJ154	150K 1/4
R328	ERDS2TJ473	47K 1/4
R329	ERDS2TJ561	560 1/4
R331	ERDS2TJ103	10K 1/4
R333	ERDS2TJ333	33K 1/4
R334	ERDS2TJ472	4.7K 1/4
R340	ERDS2TJ103	10K 1/4
R341	ERDS2TJ103	10K 1/4
R351	ERDS2TJ101	100 1/4
R352	ERDS2TJ105	1M 1/4
R353	ERDS2TJ561	560 1/4
R354	ERDS2TJ222	2.2K 1/4
R355	ERDS2TJ105	1M 1/4
R356	ERDS2TJ222	2.2K 1/4
R357	ERDS2TJ471	470 1/4
R360	ERDS2TJ221	220 1/4
R362	ERDS2TJ124	120K 1/4
R363	ERDS2TJ182	1.8K 1/4
R364	ERDS2TJ103	10K 1/4
R365	ERDS2TJ562	5.6K 1/4
R367	ERDS2TJ681	680 1/4
R368	ERDS2TJ681	680 1/4
R369	ERDS2TJ474	470K 1/4
R370	ERDS2TJ474	470K 1/4
R371	ERDS2TJ473	47K 1/4
R373	ERDS2TJ153	15K 1/4
R376	ERDS2TJ823	82K 1/4
R377	ERDS2TJ121	120 1/4
R378	ERDS2TJ151	150 1/4
R379	ERDS2TJ331	330 1/4
R382	ERDS2TJ224	220K 1/4
R383	ERDS2TJ222	2.2K 1/4
R384	ERDS2TJ124	120K 1/4
R385	ERDS2TJ103	10K 1/4
R386	ERDS2TJ122	1.2K 1/4
R389	ERDS2TJ472	4.7K 1/4
R390	ERDS2TJ333	33K 1/4
R391	ERDS2TJ333	33K 1/4
R394	ERDS2TJ333	33K 1/4
R395	ERDS2TJ104	100K 1/4
R399	ERDS2TJ103	10K 1/4
R401	ERDS2TJ223	22K 1/4
(E, EB, EG, EI)		
R401	ERDS2TJ563	56K 1/4
(EF)		
R402	ERDS2TJ223	22K 1/4
R403	ERDS2TJ273	27K 1/4
R404	ERDS2TJ103	10K 1/4
R405	ERDS2TJ223	22K 1/4
R407	ERDS2TJ272	2.7K 1/4
R408	ERDS2TJ273	27K 1/4
R410	ERDS2TJ223	22K 1/4
R411	ERDS2TJ223	22K 1/4
R412	ERDS2TJ183	18K 1/4
R413	ERDS2TJ472	4.7K 1/4
R414	ERDS2TJ474	470K 1/4
R415	ERDS2TJ392	3.9K 1/4
R416	ERDS2TJ101	100 1/4
R417	ERDS2TJ221	220 1/4
R418	ERDS2TJ682	6.8K 1/4
R422	ERDS2TJ472	4.7K 1/4
R424	ERDS2TJ2R2	2.2 1/4
R425	ERDS2TJ151	150 1/4
R426	ERDS2TJ154	150K 1/4
R428	ERDS2TJ473	47K 1/4
R429	ERDS2TJ561	560 1/4
R431	ERDS2TJ103	10K 1/4
R433	ERDS2TJ333	33K 1/4
R434	ERDS2TJ472	4.7K 1/4
R450	ERDS2TJ272	2.7K 1/4
R501	ERDS2TJ122	1.2K 1/4
R503	ERDS2TJ182	1.8K 1/4
R508	ERDS2TJ391	390 1/4
R509	ERDS2TJ681	680 1/4
R510	ERDS2TJ472	4.7K 1/4
R511	ERDS2TJ223	22K 1/4
R512	ERDS2TJ122	1.2K 1/4
R513	ERDS2TJ122	1.2K 1/4
R514	ERDS2TJ103	10K 1/4
R515	ERDS2TJ122	1.2K 1/4
R516	ERG3SJ100H	10 3
R520	ERDS2TJ823	82K 1/4
R521	ERD25VJ183W	18K 1/4
R701	ERDS2TJ682	6.8K 1/4
R702	ERDS2TJ103	10K 1/4
R705	ERDS2TJ103	10K 1/4
R706	ERDS2TJ823	82K 1/4
R707	ERDS2TJ123	12K 1/4
R708	ERDS2TJ223	22K 1/4
R710	ERDS2TJ104	100K 1/4
R711	ERDS2TJ105	1M 1/4
R712	ERDS2TJ102	1K 1/4
R713	ERDS2TJ102	1K 1/4
R715	ERDS2TJ102	1K 1/4
R716	ERDS2TJ102	1K 1/4
R717	ERDS2TJ154	150K 1/4
R720	ERDS2TJ120	12 1/4
R721	ERDS2TJ471	470 1/4
R722	ERDS2TJ222	2.2K 1/4
R723	ERDS2TJ682	6.8K 1/4
R725	ERDS2TJ103	10K 1/4
R726	ERDS2TJ103	10K 1/4
R727	ERDS2TJ472	4.7K 1/4
R728	ERDS2TJ682	6.8K 1/4
R732	ERDS2TJ562	5.6K 1/4
R733	ERDS2TJ683	68K 1/4
R735	ERDS2TJ332	3.3K 1/4
R736	ERDS2TJ472	4.7K 1/4
R737	ERDS2TJ102	1K 1/4
R738	ERDS2TJ104	100K 1/4
R740	ERDS2TJ471	470 1/4
R741	ERDS2TJ102	1K 1/4
R742	ERDS2TJ104	100K 1/4
R743	ERDS2TJ471	470 1/4
R745	ERDS2TJ470	47 1/4
R746	ERDS2TJ223	22K 1/4
R747	ERDS2TJ561	560 1/4
R748	ERDS2TJ222	2.2K 1/4
R749	ERDS2TJ224	220K 1/4
R750	ERDS2TJ223	22K 1/4
R751	ERDS2TJ223	22K 1/4
R752	ERDS2TJ223	22K 1/4
R755	ERDS2TJ223	22K 1/4
R801	ERDS2TJ222	2.2K 1/4
R802	ERDS2TJ222	2.2K 1/4
R803	ERDS2TJ222	2.2K 1/4
R806	ERDS2TJ103	10K 1/4
R807	ERDS2TJ103	10K 1/4
CAPACITORS(VALUE,VOLTAGE)		
C1	ECKF1H102KB	0.001 50
C2	RCBS1H180JC	18P 50
C3	RCBS1H3R9KC	3.9P 50
C5	ECKF1H102KB	0.001 50
C6	ECCT1H150KC	15P 50
(E, EB, EF)		
C6	ECCT1H180KT	18P 50
(EG, EI)		
C7	RCBS1H180JC	18P 50
C8	RCBC1H470JL	47P 50
C9	ECKF1H102KB	0.001 50
C10	ECKD1H103ZF	0.01 50
C11	ECKD1H103ZF	0.01 50
C12	ECCD1H470KC	47P 50
C17	ECCT1H100KC	10P 50
C18	ECFT1C223MD	0.022 16
C22	ECQP2A221JZ	220P 100
C23	ECQP2A151JZ	150P 100
C25	RCBS1H220JL	22P 50
C26	ECQP2A361JZ	360P 100
C30	ECFT1C223MD	0.022 16
C31	ECEA1HU2R2	2.2 50
C35	ECFT1C223MD	0.022 16
C36	ECEA0JU221	220 6.3
C37	ECFT1C223MD	0.022 16
C38	RCBS1C103MYY	0.01 16
C40	ECFT1C103MD	0.01 16
(EF)		
C40	ECFT1C223MD	0.022 16
(E, EB, EG, EI)		
C41	ECFT1C223MD	0.022 16
C42	ECFT1C223MD	0.022 16
C43	RCBC1H331KB	330P 50
C45	ECEA1CU100	10 16
C46	ECEA1HU010	1 50
C47	ECFT1C153MD	0.015 16
C48	ECEA50ZR47E	0.47 50
C49	ECEA50ZR47E	0.47 50
C50	ECEA1HU010	1 50
C51	ECQP2A102JZT	0.001 100
C52	ECEA0JU221E	220 6.3
C54	ECFT1C153MD	0.015 16
C55	ECFT1C153MD	0.015 16
C99	RCBS1H101KB	100P 50
C101	RCBS1H102KB	0.001 50
C102	RCBC1H331KB	330P 50
C103	ECEA1AU221	220 10
C105	ECFD1C333KDY	0.033 16
C106	ECEA1EU4R7	4.7 25
C107	ECFD1C333KDY	0.033 16
C108	RCBS1H102KB	0.001 50
C109	RCBS1C472KX	0.0047 16
C110	ECEA1AU101	100 10
C111	ECEA1HU010	1 50
C116	RCBS1H101KB	100P 50
C117	RCBS1H101KB	100P 50
C118	RCBS1H102KB	0.001 50
C137	RCBS1C392KXY	0.0039 16
C138	ECFT1C103KD	0.01 16
C139	ECEA1EU4R7	4.7 25
C140	ECEA1EU4R7	4.7 25
C141	ECEA1HU0R1	0.1 50
C142	ECQP2A332JZT	0.0033 100
C143	ECEA1EU4R7	4.7 25
C144	ECEA1HFSR68T	0.68 50
C145	RCBS1H102KB	0.001 50
C146	RCBC1H331KB	330P 50
C147	ECEA1HU010	1 50
C148	ECEA1EU4R7	4.7 25
C149	RCBC1H331KB	330P 50
C151	ECEA1CU330	33 16
C152	ECEA1AU221	220 10
C153	ECEA1CU220	22 16
C155	ECEA1CU100	10 16
C156	ECEA1AU221	220 10
C157	ECEA1CK100B	10 16
C158	ECEA1HU010	1 50
C159	ECEA1HU010	1 50
C160	ECFT1C103KD	0.01 16
C161	ECQP2A183JZT	0.018 100
C162	ECQP2A682JZT	0.0068 100

Ref. No.	Part No.	Value.	Ref. No.	Part No.	Value.	Ref. No.	Part No.	Value.
C163	ECFT1C103MD	0.01 16	C309	ECEA1HUR33	0.33 50	C504	ECKD1H103ZF	0.01 50
C164	ECEA1AU221	220 10	C310	ECEA1EU101	100 25	C505	ECEA1HU471	470 50
C165	RCBS1C472MX	0.0047 16	C311	ECEA1CS222	2200 16	C701	ECEA0JU221	220 6.3
C166	ECFT1C333MD	0.033 16	C312	ECEA0JU101B	100 6.3	C702	ECEA1AU101	100 10
C169	ECEA1CFS101B	100 16	C313	RCBS1H471KB	470P 50	C703	ECFD1C333KDY	0.033 16
C170	ECEA1CU330	33 16	C314	ECQV1H104JZ	0.1 50	C704	ECFV1C104MD	0.1 16
C171	ECEA1EU4R7	4.7 25	C316	ECEA1HU010	1 50	C705	ECEA1HN2R2SB	2.2 50
C172	ECEA0JU470	47 6.3	C317	ECEA1HU010	1 50	C706	ECFV1C104MD	0.1 16
C176	ECEA1HU2R2	2.2 50	C319	RCBS1H102KB	0.001 50	C707	ECEA0JU101B	100 6.3
C201	RCBS1H102KB	0.001 50	C325	ECEA1HUR22	0.22 50	C708	RCBC1H681KBY	680P 50
C202	RCBC1H331KB	330P 50	C341	ECEA1EU4R7	4.7 25	C710	ECEA1HU010	1 50
C203	ECEA1AU221	220 10	C352	ECEA1HU010	1 50	C711	RCBC1H470JL	47P 50
C205	ECFD1C333KDY	0.033 16	C353	RCBS1H102KB	0.001 50	C712	ECEA1HU010	1 50
C206	ECEA1EU4R7	4.7 25	C354	ECEA1AU221	220 10	C713	ECEA1HN010S	1 50
C207	ECFD1C333KDY	0.033 16	C355	ECEA1HU010	1 50	C715	ECFD1C333KDY	0.033 16
C208	RCBS1H102KB	0.001 50	C356	ECEA1HU0R1	0.1 50	C716	ECEA1HN010S	1 50
C209	RCBS1C472KX	0.0047 16	C357	ECEA1CU100	10 16	C717	ECFD1C333KDY	0.033 16
C210	ECEA1AU101	100 10	C358	ECEA1CU100	10 16	C718	RCBS1H102KB	0.001 50
C214	ECEA1HU010	1 50	C359	ECEA1AU471	470 10	C720	ECEA1HN010S	1 50
C216	RCBS1H101KB	100P 50	C360	ECEA1AU471	470 10	C721	ECFV1E683MD	0.068 25
C217	RCBS1H101KB	100P 50	C361	ECEA1HU2R2	2.2 50	C722	ECEA1HNR47SB	0.47 50
C218	RCBS1H102KB	0.001 50	C362	ECEA1HU2R2	2.2 50	C723	ECEA1AN220SB	22 10
C237	RCBS1C392KXY	0.0039 16	C364	ECEA1AU471	470 10	C725	ECFV1C104MD	0.1 16
C238	ECFT1C103KD	0.01 16	C366	ECEA1AU101	100 10	C726	ECQV1H334JZ3	0.33 50
C239	ECEA1EU4R7	4.7 25	C367	ECEA0JU470	47 6.3	C727	ECQV1H474JZ3	0.47 50
C240	ECEA1EU4R7	4.7 25	C368	ECEA1EU101	100 25	C728	ECEA1CU220	22 16
C241	ECEA1HU0R1	0.1 50	C369	ECEA1CU470	47 16	C730	ECEA1CU220	22 16
C242	ECQP2A332JZT	0.0033 100	C370	ECEA1CU100	10 16	C733	RCBS1H100JC	10P 50
C243	ECEA1EU4R7	4.7 25	C371	ECEA1HU2R2	2.2 50	C735	RCBS1H100JC	10P 50
C244	ECEA1HFSR68T	0.68 50	C372	ECEA1EU472	4700 25	C736	ECFV1C104MD	0.1 16
C245	RCBS1H102KB	0.001 50	C401	ECEA1HU010	1 50	C737	ECEA0JU221	220 6.3
C246	RCBC1H331KB	330P 50	C402	ECEA1HUR22	0.22 50	C738	ECEA1CU100	10 16
C247	ECEA1HU010	1 50	C403	ECEA1CU100	10 16	C741	RCBS1C682MX	0.0068 16
C248	ECEA1EU4R7	4.7 25	C404	ECEA50ZR47E	0.47 50	C742	ECEA0JU470	47 6.3
C249	RCBC1H331KB	330P 50	C405	ECEA1HUR22	0.22 50	C743	ECFV1C104MD	0.1 16
C251	ECEA1AU101	100 10	C406	ECFT1C153MD	0.015 16	C746	ECEA0JU470	47 6.3
C252	ECEA1AU101	100 10	C407	RCBS1C152MX	0.0015 16	C747	RCBC1C332MXY	0.0033 16
C253	ECEA1AU471	470 10	C408	ECEA1HU0R1	0.1 50	C748	ECFD1C333KDY	0.033 16
C254	ECEA1CU100	10 16	C409	ECEA1HUR33	0.33 50	C750	ECEA0JU101B	100 6.3
C255	ECFT1C103KD	0.01 16	C410	ECEA1EU101	100 25	C751	ECFD1C333KDY	0.033 16
C256	ECQP2A222JZT	0.0022 100	C411	ECEA1CS222	2200 16	C752	ECEA1HUR33	0.33 50
C257	ECFT1C103MD	0.01 16	C412	ECEA0JU101B	100 6.3	C753	ECEA1CU100	10 16
C258	ECEA1CU100	10 16	C413	RCBS1H471KB	470P 50	C755	ECEA1CU100	10 16
C301	ECEA1HU010	1 50	C414	ECQV1H104JZ	0.1 50	C756	RCBC1C332MXY	0.0033 16
C302	ECEA1HUR22	0.22 50	C416	ECEA1HU010	1 50	C757	ECEA1CU100	10 16
C303	ECEA1CU100	10 16	C417	ECEA1HU010	1 50	C758	ECFV1C104MD	0.1 16
C304	ECEA50ZR47E	0.47 50	C419	RCBS1H102KB	0.001 50	C760	ECFV1C104MD	0.1 16
C305	ECEA1HUR22	0.22 50	C425	ECEA1HUR22	0.22 50	C761	ECEA0JU332	3300 6.3
C306	ECFT1C153MD	0.015 16	C501	ECKD1H103ZF	0.01 50	C801	ECFV1C104MD	0.1 16
C307	RCBS1C152MX	0.0015 16	C502	ECKD1H103ZF	0.01 50	C802	RCBS1H102KB	0.001 50
C308	ECEA1HU0R1	0.1 50	C503	ECKD1H103ZF	0.01 50	C803	ECEA1HU010	1 50

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